DOCUMENT RESUME

ED 387 134 IR 055 661

AUTHOR	Reimers, Fernando; And Others
TITLE	Confronting Future Challenges: Educational Information, Research and Decision-Making. Studies in Comparative Education Series.
INSTITUTION	International Bureau of Education, Paris (France).
REPORT NO	ISBN-92-9145-003-0
PUB DATE	95
NOTE	188p.
AVAILABLE FROM	UNESCO, International Bureau of Education, 7, Place de Fontenoy, 75700 Paris, France.
PUB TYPE	Books (010) -- Collected Works - General (020)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Access to Information; *Decision Making; Documentation; Educational Administration; *Educational Policy; *Educational Research; Futures (of Society); Information Sources; *Research Utilization

ABSTRACT

The simultaneous presence of a revolutionary change in information technologies and a growing demand for fundamental changes in the education system have set in motion a reassessment of the relationship among information, research, and decision making. The International Bureau of Education (IBE) considered it necessary to introduce new elements into the discussion based on the conclusions of a series of new case studies on the use of research in the process of educational change and on the ways that educational information and documentation systems function. There are two studies presented here, "Using Research in Educational Policy and Administrative Decision-Making" (Fernando Reimers and Noel McGinn) and "Information Availability and Its Impact on Educational Policy-Making, Planning, and Decision-Making: Implications for Educational Information Services" (Kate Wild), that IBE considers propitious to publish in a single volume. The thesis of the first paper is that supporting decision-making with research-based knowledge is a complex undertaking. A fruitful strategy involves identifying and addressing the multiple groups of stakeholders involved as part of the research process. The purpose of the second paper is to explore the relationship between the availability of information and improvements in the effectiveness of educational systems, particularly, but not exclusively, as it relates to the reporting of research results, and to examine the implications for information and documentation services. The basic objective of this publication is to promote a dialogue among the three main partners in this process--political decision-makers, researchers, and documentalists--based on systematic and up-to-date information. Such a dialogue should lead to a reduction in the rifts, misunderstandings, stereotypes, and obstructions that have often weakened the outcomes of this work. (MAS)

ED 387 134

STUDIES IN COMPARATIVE EDUCATION

CONFRONTING FUTURE CHALLENGES:

EDUCATIONAL INFORMATION, RESEARCH AND DECISION-MAKING

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Fernando Reimers, Noel McGinn and Kate Wild

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3

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Published by UNESCO: International Bureau of Education,
7, place de Fontenoy, 75700 Paris, France.

ISBN: 92-9145-003-0

Printed in Switzerland by SRO-Kundig S.A., Geneva.

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Preface

The analysis of the relationship between information, research and decision-making has a fairly lengthy history. It has been, particularly in developing countries, a tale of tensions, conflicts and the breakdown of communication. Today, however, elements have begun to appear which have had a major influence on the discussions of past decades. For instance, the simultaneous presence of a revolutionary change in information technologies on the one hand and a growing demand for fundamental changes in the education system on the other, have set in motion a reassessment of this discussion along new lines. The information technologies have resolved—at least technically—many of the difficulties concerning rapidity and coverage in the dissemination of information. The growing strength of democracy and the crisis in ideological models which used to influence a great deal of political debate have also enabled us to overcome some of the barriers which existed between political decision-makers and researchers.

In this situation, the IBE considered it necessary to introduce new elements into the discussion based on the conclusions of a series of case studies on the use of research in the process of educational change and on the ways that educational information and documentation systems function. In the main, they have been conducted in developing countries, where the use of information in educational decision-making has a weaker tradition and a lower level of institutionalization, and where the scarcity of human and financial resources represents a fundamental variable which must be taken into account.

Even though the two studies presented here were carried out by separate authors using different methods, the IBE considers its propitious to publish them in a single volume. The basic objective of this publication is to promote a dialogue between the three main partners in this process—political decision-makers, researchers and documentalists—based on more systematic and up-to-date information. Such a dialogue should lead to a

reduction in the rifts, misunderstandings, stereotypes and obstructions that have often weakened the outcomes of this work.

This introduction has no intention of summing up the general conclusions that can be drawn from the case studies presented in this book. However, two aspects deserve to be highlighted. In the first place, the realization that the relationship between information, research and decision-making is neither simple nor straightforward. The belief that simply making information available and distributing it would be sufficient to guarantee technical rationality in political decisions has been proved false by reality. The availability of information is necessary but not sufficient. Political decisions, both at governmental level as well as by other social partners, are conditioned by a multitude of social, cultural and historical factors that are more important than the simple availability of information. Nevertheless, recognizing the limits of information does not imply underestimating its importance and the right of all to have democratic access to existing information. Producing the information required and making it available to everybody continues to be a priority objective in the management policies of education systems.

The second aspect which needs to be pointed out concerns the dialogue between the individual actors in the educational process, especially between researchers and those responsible for policy decisions. The strengthening of democratic systems of decision-making contributes to narrowing the gap and reducing the traditional lack of confidence that existed between politicians and researchers in authoritarian systems. However, in the present situation, other traditional beliefs are beginning to be disproved by reality: the belief according to which all the logic and all the knowledge were on the side of information and research while illogicality and ignorance were found only among the decision-makers. It should be pointed out that political logic and *savoir-faire* also exist, and their mastery is indispensable for the success of reforms.

For this reason, we find ourselves confronted with a double challenge: first, to introduce higher levels of information and technical rationality in political decision-making; and, secondly, to introduce a broader political base in the design of technical information instruments.

The International Bureau of Education has a mandate and a historical engagement in the field of educational information and documentation. To achieve this mandate and this engagement in the face of new technological and political situations has forced us to change many of our operating methods. In this connection, the successful completion of these studies and the publication of this book represent an important step in the process of renewing the IBE's role. We have moved from an attitude based

on the quantity of information towards an attitude based on the flow of information. From a conception focused on specific users towards a conception of a multitude of diverse users. For them, the strengthening of national information systems and their capacity for research and evaluation is more necessary than ever.

The International Bureau of Education expresses its gratitude to Noel McGinn, Fernando Reimers and Kate Wild for their immense contribution to our knowledge on this subject and for their valuable collaboration.

JUAN CARLOS TEDESCO
Director

Contents

Using research in educational policy
and administrative decision-making

by Fernando Reimers and Noel McGinn *page 7*

Information availability and its impact
on educational policy-making, planning and decision-making:
implications for educational information services

by Kate Wild *page 84*

Using research in educational policy and administrative decision-making

Fernando Reimers
and Noel McGinn[1]

As the century closes, many nations look to education as an avenue to achieve economic, political and social development. International organizations also support these increased education efforts. The World Conference on Education for All expressed this commitment of national governments and of international organizations to expand educational opportunities and improve the quality of people's lives.

Education systems around the world confront enormous problems and challenges to achieve the goals of the World Education Conference in Jomtien. Some believe that the knowledge produced as a result of systematic research can contribute to solving these problems and to overcoming these challenges. The Framework for Action after Jomtien stressed the importance of information and knowledge in each country. This text explores the ways in which research- and analysis-based information can support the design and implementation of policies to address education problems.

The thesis of this text is that supporting decision-making with research-based knowledge is a complex undertaking. We take issue with the contention that this complexity prevents the systematic arrangement of conditions to 'engineer' this type of impact of knowledge on decision-making. A fruitful strategy involves identifying the multiple groups (stakeholders) that shape the way education policy decisions are 'made' or implemented. To maximize the impact of research on decisions requires addressing these groups as part of the process of research.

Much more is involved than just strategies of 'dissemination'. Each group has to be incorporated into the process of generating research-based knowledge. This text discusses why this is necessary, how it can be

achieved and examines a number of cases that shed light on the opportunities and constraints that emerge in attempting to exert this influence.

One of these aspects is the latent conflict between the State and education research institutions and universities. Explaining this conflict would exceed the scope of this text but the point should be noted that these cases take place in contexts where researchers and decision-makers have learned to live at some distance from each other, if not in direct opposition with each other.[2] A related point is that much of the education research produced in universities in the countries examined is conceived, funded and carried out in ways that have limited links to potential users and which do not take into account the perspectives of users when drawing the implications of findings. In this sense much of the education research is not very 'usable' by policy makers, even if mechanisms existed to present the latter group with the products of research.

Another feature of the societies from which the cases are drawn is that they are highly individualistic and exhibit low institutional development. This may be in part a result of the smaller size of the countries themselves and consequently of the education research communities and of policy elites; in part it is also a result of fragile institutions and fragmented politics. Individuals are more important than offices in the dynamics that influence policy design and implementation. In searching for the link between research and decision-making we impose a superstructure of institutions or offices over the underlying framework of persons tied or separated by family, political or other personal binds. In the cases reviewed, stakeholders are mapped using not only the roles of the office, but also political and other personal roles.

Also implicit in our review of the cases, and in the lessons we draw from them, is at least one bias of which we are aware: the belief that democratic decision-making is preferable to authoritarian decision-making, and that processes that allow public scrutiny of policy decisions are superior to processes which do not. It is through this lens that we view favourably those participatory and other processes which allow organizations to learn. These processes permit dialogue to be informed by research and also permit research to be discussed as part of a broader dialogue that brings in information and interests which are a necessary part of policy design. We believe that research-based knowledge is constructed within specific value frameworks and that decisions cannot be based solely on research-based evidence.[3]

This value orientation, however, is in conflict with some of the organizing structures of educational decision-making in many of the societies studied here. In these societies the notion that rationales for public policy

should or could be publicly debated, and that the basis of decision-making could be open to public scrutiny, is a foreign concept.

It is from this perspective that in some cases explicit attempts were made to involve non-governmental organizations in the research process and in the policy dialogue surrounding research. We believed that in spite of the traditional lack of cooperation alluded to earlier, this would generate a tension leading to a wider range of options for change. We expected that the involvement of outside organizations would stimulate processes to nourish the demand for change and sustain reform efforts. This approach deliberately generates conflict by bringing together people and institutions not sharing a common perspective, values or social class and not exposed to outside influences. We believe adequate management of this conflict can lead to a shift towards negotiation and public dialogue as a means of policy design.

This view of education policy as the outcome of negotiation is based on the value we place on democratic processes and also in our interest in the actual implementation, and not just declaration, of education policies. The gap between policy and implementation is greater when the voices of key stakeholders have been suppressed in the process of policy design. Implementation is an arena where these voices can be heard. Negotiation of policy and up-front conflict management is an attempt to hear pertinent voices at the outset of policy design.

The aim of the process we propose to support decision-making with research-based knowledge is to facilitate a dialogue which allows stakeholders to reach a negotiated but informed dialogue. Research can bring fresh air in the form of new perspectives, but it must be incorporated into a process of communication so that it informs about the meaning of this collective construction of education problems and options.

THE ELUSIVE MEANING OF RESEARCH UTILIZATION

The term 'research' and the related concepts of 'information' and 'data' can be assigned several meanings. For example, Chapman and Mahlck use 'data' and 'information' sometimes as synonyms and sometimes as cause and effect.[4] To avoid confusion, 'research' in this text is understood as:

1. Actions by persons that involve the compilation or organization of observable facts or data; followed by
2. The arrangement of the data using analytic or synthetic techniques, in order to

3. Explain or interpret the data in terms of non-observed concepts or constructs.

The results of research are different than those of other activities that involve data. All management processes use data of some kind, even if they do not use the results of research. Welsh notes that all organizations have rumour mills, insider information, 'leaks' and 'moles' that testify to the importance of data in management.[5] But these kinds of data are not generated using the 'scientific method', a set of procedures that maximizes the likelihood that independent observers will report the same data and which provides a means for testing the usefulness of the explanations of the data. The mere collection and reporting of education statistics is not research, although those actions might be a part of a research process.

During at least the last fifteen years a number of authors have studied and debated what it means to 'utilize research.' Much of this debate has been speculative; during the 1980s a few empirical studies were conducted to inform this debate. All of these were conducted in early-industrialized countries.

Carol Weiss[6] has characterized seven alternative models to aid in understanding how research contributes to the policy process:

1. The linear model, which assumes that the development of policy follows from research on the topics addressed by policy;
2. The problem-solving model, in which research is used to fill specific gaps in knowledge, from which decisions and action follow;
3. The interactive model, in which researchers and policy makers dialogue and collaborate in the solution of specific problems;
4. The political model, in which research serves the perfunctory role of justifying decisions made on the basis of other rationales;
5. The tactical model, in which research is an excuse to avoid a decision;
6. The enlightenment model, in which research gradually 'permeates' and informs public understanding of problems and the identification of suitable policy options;
7. The intellectual or research-oriented model, in which research, together with other intellectual endeavours (journalism, history, etc.) raises the quality of public debate about public policy issues.

One dimension in which these statements can be arrayed is the extent to which research utilization depends on the dissemination of the finished product, or on the process of generating that product.

UTILIZATION AS A FUNCTION OF DISSEMINATION OF RESEARCH

Weiss and others[7] concur that the first and second models (listed above) provide inadequate characterizations of the links between research and decisions in the public policy domain.[8]

From the point of view of individuals and institutions committed to education research and interested in increasing the impact of that research on policy decisions, only models 3, 6, and 7 provide a framework to guide action. Model 3 (the interactive model) suggests that researchers should focus on the type of dialogue they conduct with decision makers. Models 6 and 7 suggest that researchers should pay special attention to issues of dissemination of research results. These approaches will be discussed in Section III of this text.

Weiss' characterization and other contributions to the research-policy debate suggest that the relationship between these two activities is more complex than might seem apparent. First, both the activity and the product of research are important for policy formulation. The 'results' or 'products' of research are much more than the final report.

Secondly, although we are convinced that research has effects on policy, those effects occur in various times and ways. A 1982 symposium that discussed the research and policy relationship, primarily in Europe and the United States, concluded:

> The evidence is patchy and inconclusive on the actual impacts. Diffusion and enlightenment are the dominant metaphors rather than 'impact' or 'cause and effect'.[9]
>
> [...] the relationship is much more diffuse and hard to pinpoint than had been hitherto conceived. Scholarship contributes by putting certain issues on the agenda of public debate and by inspiring demands for political action. Research, particularly through critical analysis, often generates ideas more than specific facts or knowledge. It contributes to reinterpreting an issue by drawing attention to aspects that have gone unnoticed. It might affect the belief systems of the general public. It can contribute to achieving consensus about an issue. Political decisions are made within a context of accommodation. The decision is not clear cut but is an attempt to arrive at resolutions that can accommodate a maximum of interests represented by groups and individuals who want to influence the decision or policy-making process.[10]

Husén has argued that the poor connection between education research and decision-making stems from differences in the backgrounds of researchers and decision makers, differences in their social values and differences in institutional settings.[11] Researchers generally work in university settings and obtain credit for research which is recognized by their peers; they investigate problems and present findings within the context of paradigms, theories and methods recognized in their discipline; they place a high premium in their autonomy to reach conclusions. Policy

makers have a more practical orientation and a clear sense of their own degrees of freedom to implement policy; they value research to the extent it is instrumental in achieving certain policy objectives. These differences characterize the contrasting ethos of researchers and policy makers. Policy makers often judge research findings as insufficiently conclusive to support decisions. Methods of research that dismember policy problems into sub-problems that can be more easily investigated leave decision makers with bits and pieces of information but no synthesis of problems of concern.

This characterization of the different ethos of research and policy is consistent with the reasons advanced by Levin to explain why much research is not useful for policy:

> First, it must address the particular questions that are being faced by the policy maker. Second, it must be timely in providing appropriate research findings in time for making the correct decision. Third, it should be written in such a way as to be understandable to a person who is not an expert on educational research. And, fourth, it should not violate the particular political constraints which are placed upon the policy maker.[12]

This characterization of the features which make research useful for policy-making suggests that interactions between research and policy are difficult. But it does not follow that research should be constrained to 'fit' policy. On the contrary, Levin states,

> [...] these restrictions would prevent an honest inquiry of high quality from taking place, and in the long run the research function would become a recognized propaganda activity of the State with no credibility beyond that.[13]

While we will argue that a policy orientation in the analysis—and in the dialogue surrounding the analysis—is necessary for research to illuminate immediate policy questions, this does not mean we believe this is the only type of research which can help to improve education. Some authors have downplayed the distinction between fundamental and policy-oriented research, arguing that all education research has practical consequences. Fundamental research serves a long-term function, creating a context within which to define certain issues as problems to be addressed; policy-oriented research serves a more immediate function, analyzing problems within the context of prevailing views.[14] Within this tradition are authors who propose that the expectation that educational research will have immediate policy applications is unrealistic. Instead, they argue, the main contribution of education research is to shape, challenge or change the way policy makers and practitioners think about problems.[15] A conclusion of the 1982 Sweden Symposium on links between education

research and policy-making was that political decisions often create the context in which educational research results can enter the policy arena.[16]

If research should not be constrained to fit policy, it also follows that policy should not be constrained to follow research. Policy statements have two components: goals, and the preferred means to achieve those goals. Research that demonstrates that a particular set of procedures is effective in achieving goal A does not dictate that goal A should be preferred. This assertion is for some the basis of the gulf between researcher and policy maker. The gulf can be bridged. A central concept which emerges from this line of reasoning is that of the 'knowledge-broker', someone who can link the worlds of research and analysis and policy.[17]

This broker could well be a policy analyst. In the United States the field of *policy analysis* has developed since the 1970s as a professional specialization which trains to use the tools and methods of social science research to address problems framed by policy makers. Variations in the field have now appeared in Europe.[18] Several leading universities in the United States have established graduate programmes in public policy while many other graduate programmes in the professions (i.e. education, health, management or public administration) have incorporated the development of policy analysis skills into their curricula.

Training for policy analysis includes several aspects that permit closer links between research and policy. These are:

1. An interdisciplinary approach to analyze public policies that emulates the way in which decision makers perceive their problems:

   Real decisions, as we all know, do not respect the boundaries of the academic disciplines: they always have political, economic, and organizational components; they may well also have legal, educational, biological, or other technical implications as well.[19]

2. A policy orientation in the analysis. This means that the purpose of the analysis is not just to understand the conditions bearing on a particular problem but to make decisions which can influence those conditions. In practice this approach leads to maximizing the role of factors which can be influenced by policy and to minimizing the role of those which cannot. Understanding the feasibility of options to address certain problems (political, financial, organizational) is central to policy analysis and distinguishes it from most academic research.

3. An emphasis on understanding the problem from the perspective of the client, i.e. the decision maker, who attempts to influence conditions bearing on the problem. This means recognizing the degrees of freedom of the decision maker and emphasizing those conditions and variables which are more readily affected by the policies falling under her/his authority.

4. An emphasis on conducting the analysis within the time limits of the policy cycle. Academic researchers are less concerned with completion deadlines than are policy analysts. The policy analyst is particularly aware of the importance of opportunities to influence decisions. The distinguishing feature of much analysis for decisions is that it has to be timely and relevant to the issues at hand.

Most education policy analysis is not conducted in academic institutions, but in government agencies, 'think tanks', consulting firms and international assistance agencies. Universities which offer specialized training in policy analysis conduct policy analysis in academic departments or in specialized research or consulting units within the university.

A similar concept has been proposed under the more general term of 'expert' in a study on social science research utilization for public policy in Finland:

> What is usually needed when shifting from the domain of research to the realm of politics is a transformation process, in which research results are evaluated and translated into practical recommendations. This is usually done by others than researchers, for instance by politicians, administrators, interest group activists or journalists. If researchers take part in the transformation process, they adapt themselves to an expert role in which they not only present the consequences of some actions but give also values to the policy alternatives [...] The expert does not substitute for the politician or any other decision-maker. He brings his actual knowledge and value judgements to the decision-making process and thus provides one alternative for designing the decision [...] The task of the expert is to convert scientific findings to policy recommendations, but the conversion of advice into decisions remains the domain of decision-makers.[20]

Policy analysts or 'experts' can work as 'brokers' between the worlds of research and the worlds of policy. Husén, however, incorporates them into the same category of policy makers:

> The last group [policy analysts] rather quickly tends to become socialized into the orientations and opinions prevailing among administrators and/or policy makers in the Ministry [...] However, professionals with research background in ministries or central agencies represent a new and proliferating species [...] As a distinct category with a particular type of training they are as yet mainly to be found in America.[21]

Various authors have pointed out how the links between research and policy are strengthened as the boundaries between each professional field become blurred. At a symposium on the links between research and policy, participants from Sweden indicated how researchers often work as administrators and policy makers and how policy makers themselves conduct some education research activities.[22]

> Sweden, together with the USA, is an example of the maximum interaction of policy and research, although the two countries are very different in context and therefore in the ways in which research findings and speculations enter the policy bloodstream.[23]

Ad-hoc commissions have been appointed by the Cabinet in Sweden and other countries to prepare policy analyses. In many cases social scientists have formed part of these commissions. In Germany, 'the Education Commission of the German Educational Council included experts in educational research, scientists with general interest in education and representatives from public life'.[24] In Finland, university professors or researchers have traditionally been appointed in ad-hoc committees to advise Parliament, which traditionally has requested official comments from universities and appointed researchers as experts in parliamentary committees.[25] In the United States the influence of policy analysis is more direct in the executive branch than in the legislative. A study of the use of analysis by Congressional staff found that even though staff paid attention to evidence, this rarely shaped policy directions. Analysis had a very limited 'enlightenment' function for Congress and had minor impact on the substance of legislative action:

> Congressional committee staff were clear that analysis doesn't have a chance of setting broad direction for public policy. Setting political direction is what members of Congress are elected to do and what staff are hired to help them do. Meeting the needs of constituents, mediating the interests of lobbies and groups, following the ideological proclivities that got them elected in the first place—that is the member's role.[26]

In developing countries international organizations play a significant role as brokers between research findings and policy decisions. The World Bank, for example, has conducted an extensive research agenda which has contributed to the development of various education policy documents that influence education lending policies. The report of a symposium discussing the links between research and policy commented on this role of the World Bank:

> The Bank serves as a catalyst for research and as middle man between researchers and policy makers in developing countries. It is designed to transfer 'know how'. The impact of educational research on the Bank is direct [...] The 1980 Policy Paper on education issued by the Bank has drawn upon research and discusses educational research and research needs. It draws attention to the restricted scope of research in developing countries and its lack of relationship to policy [...] To many present at the Symposium the perspectives of the World Bank and the discussion about the role of research in developing countries provided useful contrasts against which to analyze the experiences of more affluent countries.[27]

The recognition of the role of institutions as research brokers brings in the issue of the role of the organization's biases on the kind of research which is disseminated. Research can focus attention on and increase the salience of a particular issue, or by its absence it can imply that a given issue is not important. Samoff argues that the particular research orientation of the Bank excludes attention to such goals as:

1. National unity and integration of ethnic, cultural, religious, racial and regional communities;
2. Values such as sense of national responsibility, respect for manual labour, sense of individual and collective competence;
3. Participation in democratic institutions.[28]

Part of the complexity of the links between research and policy lies in the complex relationship between stated policy and implemented policy. In organizations such as the World Bank, for instance, research may influence which policies are stated, but have little impact on operations. Ayres points to the loose and sometimes non-existent connection between research, policy and actual lending by the World Bank.[29]

THE PRODUCTION OF KNOWLEDGE

Knowledge as objective truth

Concepts such as information utilization are derived from a tradition that separates producers from consumers of knowledge. Knowledge is defined as a commodity, as something that exists external to any individual, and therefore can be carried, packaged, transferred, and of course sold. Producers have special skills in the collection, compilation and analysis of data. Typically, the term researcher is used to distinguish producers of knowledge from the decision makers who consume it.

A special skill of researchers is the conversion of data into information or knowledge through explanation. Researchers have learned that information or knowledge utilization increases when explanations are couched in terms that are familiar to consumers. This may require involvement of the decision maker in the process of data collection, analysis and explanation, but data are ultimately collected and explained by researchers. Some researchers consume their own knowledge, but the vast majority of decision makers are assumed not to be capable of producing knowledge.

Decision makers are assumed to not produce knowledge because they lack technical skills as well as conceptual frameworks. The technical skills include techniques of data collection, data processing and above all data analysis. In data analysis the knowledge producer goes beyond mere observation of facts and identifies or recognizes the meaning inherent in those facts. This ability to recognize inherent meaning, or truth, requires objectivity, an ability to see reality as it is with no interference from personal attributes, traits or political influences.

The exercise of objectivity is considered to require lengthy periods of training in the application of specialized methods of observation and explanation. Even then, most knowledge producers or researchers consider that it is not possible for one person to be completely objective. The ultimate test of the validity or truth of knowledge is that multiple objective observers agree independently on what they have seen or understood. In addition, many researchers believe that it is only possible to know for certain what is *not* true, as explanations require assertions about *all* the factors that determine a particular occurrence. As we can never know all the factors that are operating, we can only repudiate assertions about reality; we can only tell what is surely not true.

This latter point is troublesome, since decision makers and managers want to know what *is* true, what they can act upon with some assurance that their actions will not be wasted or harmful. Many researchers who interact directly with decision makers act as if the knowledge they are offering is certain knowledge.

> What I mean by a planning mistake, or disaster, is that a policy solution was adopted that was diametrically opposed to the one that should have been adopted for the educational system to have served the very purpose intended by the planner in the first place.[30]

This feeling of certainty about what policies should be adopted may come from a collegial consensus about reality. But this can later prove to be wrong.[31]

Unfortunately the mistakes of researchers can be obscured by the use of their professional skills. There are at least four ways in which researchers can cloak their statements in objectivity:

1. Deliberately using technical jargon and sophisticated analyses to obfuscate issues;
2. Appealing to openness and dependence on experts to create false assurance;
3. Arguing that a political issue is actually a technical issue; and
4. Holding back information about other alternatives, misrepresenting the validity of analyses, claiming success for untested options.[32]

Knowledge as subjective truth

Not everyone accepts the view that objectivity is the best way to obtain certain knowledge. An alternative perspective argues that knowledge is always personal. When we say we know something, we mean that we have a personal understanding about that thing. The understanding may

be wrong, and it may be different than the understanding that someone else has, but it is the only understanding we have and therefore the basis for our actions. Although seldom articulated, this view is held by most managers and decision makers.

All understandings come through reflection on personal experience. Most of our experience is not, however, direct. Much of what we 'know' comes from other persons through conversation, reading, teaching. But what we learn is not always what is 'taught', that is, it is not always what the teacher hopes we will learn. What we know at the end is the result of the action of our mind on the data we have received. Our interpretation and explanation of that data is personal, and being personal is necessarily *subjective*. All knowledge is subjective, and 'objectivity' is possible only as a posture that we take but not as an outcome. It is possible for what we 'know' to be incorrect, but we believe what we know to be true and act upon it as if it were.

Much of what we know also comes about because of our actions. When we act on something we believe to be true, and our actions are not confirmed, we change our understanding. So *all* of what we *know* we ourselves produce, through our own actions. Each person is a producer of their own knowledge. It is true that some persons are better at producing knowledge that 'works,' that is, leads to expected outcomes, than are others. And some people are experts in the various methods for knowledge production. But even so, each of us is a knowledge producer, and each of us produces the knowledge we have.

This perspective redefines the problem of knowledge application in policy-making. The issue is no longer how to transmit or transfer knowledge from the expert producer or researcher to the decision maker. In fact, the producer-consumer distinction disappears. As a consequence, attention shifts away from attributes and skills of producers to the *process* by which knowledge is generated. The problem becomes one of knowledge production rather than knowledge utilization. Informed decisions will result when decision makers learn how to produce their own knowledge.

Proponents of this perspective build on the insight of Weiss[33] that decisions and policies are not always actions in a single moment in time but often are *processes* in which more than one actor may be involved and which may change in form and intention over time. The decision or policy emerges over time in a dialectical reaction to the changing situation of the decision maker(s) or policy maker(s). The critical knowledge, therefore, is that of the policy maker and not that of the researcher.

Within this perspective, there are two approaches to the issue of how to increase use of research-based information in policy-making. The first approach has already been anticipated: researchers can increase utilization of *their* knowledge by increasing *intersubjectivity* between research and policy makers. Intersubjectivity is a fancy term for 'shared understandings'. Each of us can have our personal knowledge, but it is also possible to arrive at the same point of view as another person. People are more likely to share a point of view when they have had the same experiences, share a common language and a common set of concepts for interpreting the experience, and have used those concepts to discuss their shared experience. These insights go back at least to Machiavelli[34] but often are forgotten by researchers who ignore the existence of the 'two cultures' (science and politics) described by C.P. Snow.[35]

The second approach suggests that policy makers will increase the utilization of research information if they produce that information themselves. In some cases, policy makers can be trained in the application of the scientific method to their work. This is carried out in programmes such as those of the International Institute for Educational Planning (IIEP) or the Economic Development Institute of the World Bank, or through training programmes associated with technical assistance projects. In some cases, researchers can be converted into policy makers. In Jamaica, for example, research was most likely to be utilized in policy formulation when changes in government brought in new officials who previously had been university researchers.[36]

In some instances it is possible to organize the management of the education system (or any other organization) so that the whole policy process is viewed as an 'experiment'.[37] The perspective is associated with concepts such as that of the *learning organization*.[38] Each management decision, each policy, can be treated as a hypothesis that is tested by implementation. Comparison of the results of the policy with what was expected provide a correction for the 'operational model' or 'conceptual framework' of the policy maker *cum* researcher.

The utility of each of these approaches depends on the specific context in which it is applied. The sections that follow are an effort to elaborate some of the dimensions of context that are important when choosing a strategy for utilizing research information.

INFORMATION AND ITS SOURCES

Decisions (of which policies are one kind) are made in anticipation of some outcome. One decides to follow path A instead of path B with the expectation that path A will more surely lead to the desired destination.

Informed decisions are those that take into account previous experience in the process of choice. In the classical definition, *information* is knowledge that reduces uncertainty.

Uncertainty can be reduced in two ways. In traditional normative or rationalist planning, and in policy analysis, the primary objective is to reduce uncertainty about the outcomes of specific courses or tactics of action. Reduction of uncertainty about outcomes is the primary objective of the analysis, and the major selling point with decision makers. The policy analyst promises to help in avoiding risk.

Recent developments in planning and management emphasize the design of *strategies* of action, understood as multiple sets of tactics that can be employed depending on the context in which the organization finds itself in the future.[39] Which specific strategy will or should be chosen is not and cannot be known in advance. Strategic analysis attempts to provide decision makers with future choices, not prescriptions. The objective of the analysis and planning is to increase freedom: the uncertainty that is reduced is not about the specific consequences of any given action but about the existence of opportunities for positive choices in the future.

Research to reduce uncertainty employs estimates of probability of future events. The researcher/analyst estimates the stability of levels and the rates of change of critical variables, using results from a number of different situations. This kind of analysis uses the experimental design as the standard, and attempts to exclude through statistical manipulation all factors which might generate results other than those predicted. Projection models and forecasts are used to describe the future.

Research to increase options, on the other hand, attempts to identify all possible factors that could operate in the future. This research is less concerned with exactly what might happen than with being prepared for anything that might happen. Probabilities of occurrence of future events are seen as *emergent*, as the result of unpredictable events. The explanations that are generated are therefore more inclusive and the systemic nature of the research makes simulation models more appropriate as a means to describe various possibilities.

Few policy makers are likely to have the technical training, and the time, to carry out the work involved in research to reduce uncertainty. Many policy makers also do not have the training to develop systemic explanations and simulations in order to think about the future. Most experienced decision makers do have an intuitive sense of what future options might be, but generally are not able to codify that knowledge in a way that makes it available to their staffs. Those few decision makers

who can lay out convincing visions of the future are known as charismatic leaders. It is important to recognize that their particular charisma is an ability to share their knowledge with others.

This knowledge takes various forms, as the kinds of decisions that have to be made in an organization vary according to the size, stage of development and environmental conditions of the organization. What kinds of research exist to match what kinds of decisions?

RESEARCH TO SUPPORT EDUCATION DECISION-MAKING

Most writings on the impact of educational research on decision-making focus on the education research side of the dyad. The impact on decision-making is looked at as derivative from the main interest which is research. The language and key concepts of this tradition reflect this bias: one looks at research *use* and research *dissemination*.

An alternative to this approach focuses on the *process* of decision-making. Requirements of the process dictate the kind of research that is done.

Types of research according to purpose

Vielle distinguishes four kinds of research—academic, planning, instrumentation, and action—that can be useful to a decision/policy maker.[40] Each answers a different question.

Academic research is designed to answer the question: are our systems of explanation (theories, models, conceptual frameworks) correct? The question is answered by rigorous testing of hypotheses drawn from the conceptual framework.

Planning research (which today might be called policy analysis) answers the question: what are the factors that produce the outcome we are seeking? This kind of research uses statistical analysis to generate patterns of relationships among variables.

Instrumentation research answers the question: how can we construct or organize the factors required to produce the desired outcomes? Repeated trial and error methods are used in the instrumentation process, for example in preparing a new curriculum.

Action research asks: can we in fact produce the outcomes we desire? This question can only be answered by attempting to produce, for the entire system, the outcomes that are desired. In the end, the objective of the research is the outcomes themselves rather than knowledge of how to achieve them.

Steps in policy design and implementation

Haddad has described the process of designing and implementing education policy decisions as being eight steps: 1. Analysis of the existing situation; 2. Generation of policy options; 3. Evaluation of policy options; 4. Making the policy decision; 5. Planning for policy implementation; 6. Policy implementation; 7. Policy impact assessment; 8. Subsequent policy cycles.[41]

Conventional 'research'-based information can play a useful role in steps 1, 2, and 7. The last step relies primarily on evaluation research. The first step, the analysis of the existing situation examines the country background, the political context, the economic context and the education sector. The analysis of problems in the education sector relies on operational indicators and on existing research. The second set, the generation of policy options requires three operations: the generation of data, the formulation and prioritizing of options and the refinement of options. Data can be generated either from specific analytic activities such as sector assessments or from existing knowledge which can originate in conventional wisdom, research syntheses or comparative indicators.

Types of research according to policy formulation and planning

The classic approach to education policy formulation or planning divides the task into four major phases: diagnosis, analysis, design and implementation. Each of these four phases involves a different set of decision makers, and requires use of a different kind of information.[42]

Policy-making begins with a decision as to whether or not there is a problem that requires a solution. This decision uses two kinds of information: about the goals or objectives that are being pursued, and about the extent to which those goals are currently being achieved. This kind of information is called 'historical' to note that it is used to describe what has happened, but not necessarily to explain its occurrence. Information about goals and objectives will probably be obtained from the policy maker, although in many cases objectives are not stated clearly enough to permit an assessment of the extent to which they are being achieved.

A common form of diagnostic research for education reform is the sector assessment, or sector analysis. The process and product of a sector assessment can be used for:

> [...] on-going dialogue across and within sectors to improve education management information systems which provide the data needed for planning, policy-making and monitoring of policy implementation and policy outcomes as a basis for strategic planning across and within education and other human resource subsectors.[43]

The sector assessment includes a summary of the state of the sector, an evaluation of the success of programmes in meeting their goals, identification of sector needs and constraints and opportunities for sector improvement.

Sector assessments typically take as policy objectives the improvement of effectiveness, efficiency and equity; the performance of the system and options for reform are identified with reference to these criteria. Also, options are examined with attention to their financial, political and administrative feasibility. Most sector assessments are done by external teams within a relatively brief period of time, and consequently rely on existing research to document the characteristics of the system under study.

In the second phase of policy-making emphasis is on explanation of why the current situation has occurred. The procedures here are those usually associated with 'research' and 'analysis', even though the procedures used for diagnosis also employ the scientific method and require rigour in application. The information generated in the diagnosis permits the policy maker to decide whether there is a problem that requires attention, and is used to decide whether something can, in fact, be done. A common mistake, however, is the assumption that knowledge of what brought about the problem is sufficient to resolve it.

Solution of problems requires changing the conditions that explain the past; the purpose of analysis is to discover those conditions. A different kind of information is required to understand what might be made to be. The design process is an attempt to collect information about what might overcome those factors that result in the current problem situation. When done well, design involves several rounds of testing of variations of the policy that eventually will be chosen and implemented in the system. The methodology of these tests is quite different from the procedures used in analysis. The former ordinarily requires large samples for the application of inferential statistics, while the formative evaluation procedures used in the design procedure employ small samples.

Finally, the formulation of a policy requires information about availability of the inputs required to implement it. The information here is again of a different order than that required for the 'research' in the analysis phase.

Schiefelbein and McGinn argue that decisions are made at several levels in an organization, and that research and information varies according to location. At the 'political' or policy level of the organization (e.g., the National Educational Council, the Office of the Minister) the decisions made are with respect to goals and the broad means to achieve

them. At the executive level (e.g., the office of the Permanent Secretary or the Vice-Minister), decisions concern the programmes required to carry out policies. At the operational or administrative level (Directors-General), decisions are about the means to implement and monitor programmes. At each level there are phases of diagnosis, analysis, design and implementation. The fullest utilization of research will occur when the kind of research done matches the requirements of the particular decision to be made. In the Schiefelbein-McGinn scheme there are twelve combinations of research-for-decisions.

What each of these three perspectives (Vielle, Haddad, and Schiefelbein and McGinn) indicates is that the utilization of research-based information is a complex process. Utilization occurs at various moments and in various ways in the process of making decisions. We can expect, therefore, that there are multiple sources of research-based information.

Sources of research-based information

Research data (understood as the immediate results of observation and measurement, and as different from routine collection of education system statistics) is generally maintained by the researchers who collected it, and often is unknown to decision makers and even to other researchers. Some collections of educational research data bases do exist (such as UNESCO's educational statistics database) but few researchers know about these or make use of them. Data in itself is of little utility to decision makers.

Research-based *information*, or processed and interpreted data from research studies, on the other hand, is potentially of much greater use. The volume of research studies which report analyses of data is enormous. Perhaps the largest of the collections is found in the International Bureau of Education. Computerized databases such as Micro-ISIS, ERIC, the REDUC system of Latin America and the SEABAS system of Southeast Asia maintain a large number of research reports. The UNESCO series on educational innovations[44] includes much information based on research, as do publications of the Regional Information Network of INNOTECH in the Philippines. There are many governmental and commercial journals that publish results of education research. In addition, research information is generated on a regular basis in almost every country in the form of master's and occasional doctoral theses.

Research-based information in individual studies, including that generated locally, is seldom if ever consulted by decision makers or policy

makers. In addition to problems of physical as well as conceptual accessibility noted above, the sheer volume discourages all but the most serious scholar or the diligent research assistant.

A number of efforts have been made to synthesize research-based information to make it more accessible and useful to decision makers. The simplest efforts categorize studies in terms of whether or not they confirm that a particular policy (or intervention) has a positive effect. One of the most-often cited of these research reports is that of Fuller[45] who synthesized research on factors associated with higher levels of student achievement reported in 185 studies. Study results were assigned a +, *0*, or – to indicate whether the results were in the expected direction. The text encourages readers to believe that the best policies for raising levels of achievement are those that have the highest proportion of +s. Fuller's approach has been expanded by Loera, who reviewed more than 400 studies and organized them into a computerized data base that would respond to queries about policies to improve levels of achievement.[46]

Both efforts have been used in workshops to train decision makers in the use of research for policy-making. The reactions are generally negative. The decision makers focus on the minority negative findings, and want to know about the contextual variables that probably explain their appearance. They report that the extensive collection of findings is not interesting, even when presented on a computer screen. Some decision makers note that the lists of findings resemble answers to questions they have not asked. Instead, they want to know what are the important questions they should ask.

Perhaps the best known efforts to synthesize research findings are the 'state of the art' research reviews encouraged by the International Development Research Centre (IDRC) of Canada and then later by the Research Review and Advisory Groups (RRAGs) financed by the IDRC. Reviews of this kind have also been produced under the sponsorship of the World Bank, USAID, SIDA, GTZ and other agencies. A dozen were produced under the BRIDGES Project at Harvard University.

Many of these reviews differ from ordinary reviews of research literature found in academic journals, in two ways: they include studies that would not make it into an academic journal because of limited sample size or weak statistical analysis; and they focus explicitly on specifying 'what works' from a policy perspective, rather than on hypothesis testing. In addition to reviews focusing on single policy issues, there are book-length syntheses of research.[47]

Several informal efforts to evaluate the usefulness of state-of-the-art reviews and book-length syntheses indicate that while they are highly

valued by researchers, especially those in poor countries that do not otherwise have access to research studies and results, they seldom are read by policy makers. The major complaints are that they are too long, too esoteric, and generally not concrete enough to respond to the problem of a particular decision maker.[48] The informal studies also indicate, however, that the long-term impact of these reviews on policy can be high. The reviews are in many countries primary reading material in teacher training institutions and university education faculties. The next generation of teachers and decision makers will have been informed by this method of communication.

Other efforts to share results of research with decision makers have organized access to research results using a framework which attempts to reflect policy choices or the kinds of questions decision makers need to answer to formulate policy. SHARE is a policy-structured database which provides access to about 1,000 summaries of research reports in developing countries to support education policy.[49] The HIID (Harvard Institute for International Development) has recently published a book which follows a non-linear format of presentation to introduce research-based information step by step following a series of questions from decision makers.[50] The *Forum* is a magazine designed to disseminate research results to education decision-makers and practitioners organizing information under common policy topics.[51]

A third approach to sharing research results with decision makers is through training programmes. The interaction between trainer and decision maker makes it possible to organize information of immediate importance, and to present that information within a conceptual framework that enables the decision maker to formulate questions about the research-based data. Training programmes are, however, limited in time, and are very expensive. Furthermore, there are no published studies that evaluate the impact of this training on use of research information in decision-making.

INFORMING POLICY AND DECISION-MAKING

What it means to 'inform' a policy or decision

Both of the perspectives on information and knowledge described above agree that a decision or policy can be considered to be 'informed' if it takes into account research-based information. The issue is, how does that come about? The 'objectivist' perspective emphasizes increased use by the decision maker of research as a product generated by a researcher.

The 'subjectivist' or 'constructivist' approach emphasizes the production of knowledge by the decision maker alone or participating with a researcher.[52]

These two perspectives define a continuum or dimension along which decision processes can be placed. Variation in the specification of decision processes occurs as part of the complex nature of those processes.[53] A second factor noted earlier is that the degree of use of information varies according to the context in which decisions occur. For example, when the purpose of decision-making is not the decision itself but the impact of the process on some other group, the information used has to have public legitimacy (independent of its 'objective' truth-value). When the consequences of a wrong decision are seen as very costly or painful, the research and decision process is likely to be more extensive in an attempt to find the most appropriate solution. On the other hand, when the costs of a wrong decision are high but there is little time for decision-making, then decision makers will rely on previous research and perhaps choose a solution that minimizes loss. Decisions that are seen to take place in reversible stages allow the use of research models that permit experimentation. In some circumstances, the information required to make a decision is about the decision makers themselves. For example, research can contribute to clarification of the goals of individual decision makers, as well as to consensus among many decision makers. Each of these situations will affect whether research is used as a product or as a process for changing the knowledge of the decision maker.

Increasing the use of research

The state-of-the-art literature on the links between research and policy could lead to the conclusion that the complexity of this relationship makes it unlikely that conditions can be arranged to improve the links. This was one of the themes discussed at the Sweden Symposium referred to earlier:

> It is one thing to say that we can find examples of research having an impact on policy, and of how research 'percolates' or enlightens or indirectly raises consciousness. But it is another thing to assume that impacts can be engineered.[54]

We take issue with this conclusion. Our experience working as education policy analysts in developing countries, and managing large-scale projects designed to enhance the analytic foundations of policy decisions, has taught us that it is possible to think systematically about impact, even before research and analytic activities are undertaken. We first review current approaches to strengthen the links between research and policy, and then examine a number of examples where this has been achieved.

There are two basic approaches to increase the impact of research as a product of policy decision. One approach focuses on the diffusion of products, the other focuses on the process that links research with policy decision activities.

Diffusion methods

Husén explains why much education research fails to influence policy decisions:

> A [...] major reason for the disjunctions between researchers and policy makers is ineffective dissemination. Research findings do not by themselves reach decision makers and practitioners. Researchers seek recognition in the first place among their peers. They place high premium on reports that can enhance their academic reputation and tend to look with skepticism upon popularization.[55]

For this reason several authors have proposed widespread dissemination of research results in the media to reach all potential stakeholders affected by these results.[56]

Other approaches to disseminate research findings include the preparation of selected research results and reviews, such as is done by ERIC and other specialized services (for instance for research results in higher education) in the United States, REDUC in Latin America, and by SET, a semi-annual packet of research results and reviews produced by the Australian Council for Educational Research and the New Zealand Council for Educational Research.

The emphasis on diffusion and dissemination to increase the use of research begins with the question: who needs to know what, and when? That is, research that begins with the end (client) in mind has greater likelihood of impacting decisions.

Adopting the perspective of the client means knowing the audience, finding out what information users need and why, trying to understand their point of view, submitting the report in time to be useful and developing a reporting plan. A successful reporting plan satisfies six conditions: 1. The information is relevant to real problems; 2. The information is practical; 3. The information is useful; 4. The information is credible; 5. The information is understandable; 6. The information is provided in a timely fashion.

A review of the reports of UNESCO: IBE meetings on the use of research and information concludes that there are five key factors to advance effective dissemination of research results:

1. Support systems, channels and formats to promote the use of research information. There is consensus on the need of high-quality reports

presented in various formats in a language which can reach decision makers;

2. Networking; use of regional networks to promote dissemination of research results;
3. Comparative research and studies;
4. Institutional arrangements to improve communication and cooperation between researchers and decision makers; setting up 'research review committees' to improve communication between researchers and decision makers;
5. Training researchers to disseminate the results of their research more effectively.[57]

Policy dialogue is currently used by some to describe processes of dissemination of results of research and analysis, although one could argue that the process involved here is one of *marketing* rather than actual *dialogue*. One perspective on how researchers can use policy dialogue to inform policies with research-based information states the following conditions as requisite:[58]

1. The issue must be of concern to the decision maker.
2. There must be counterparts for the external actor. Someone in the policy maker's group has to serve as a broker or go-between with the researcher.
3. The decision maker must be predisposed to use research-based information.[59]
4. At the same time, however, the focus must not be on research. The ultimate aim of the process is dialogue and marketing.
5. Consequently, mere dissemination is not sufficient. 'The marketing of policy change must be technically very proficient' in order to overcome expected political opposition to the change proposed by new policy. '[...] the key interest groups must be identified, and the 'buttons' that motivate them must be pushed.' 'Researchers must be able to handle both the communications aspects and the research/political economy aspects.'[60]

The purpose of this process is to convince policy makers to act as the researchers would have them act. Researchers engage in

> [...] a process of *marketing*, as opposed to *design*, of the policy reform. To put it crudely, it is a highly sophisticated, carefully crafted sales job that creates the feeling of inclusiveness and co-ownership of the reform process. The best situation is if such a process in fact

is inclusive and is in fact co-owned by all the stake-holders, as long as the consultative nature does not extend to the basic choices but creates ownership of the decisions after the fact.[61]

Participation methods

A second approach to increasing the use of research in decision-making focuses on the process by which the research is conducted. The basis of this approach is a variation of implementation theory[62] which ordinarily is used to explain disjunctions between policies and how they actually are carried out, but can also be applied to the explanation of disjunctions between research and the policies actually made. The question to be answered is: under what circumstances are policy makers more likely to use research? The theory suggests that this is most likely when decision makers *participate* in the process of research.

Research and policy-making, and the relationship between the two, are affected by the cultural and constitutional backgrounds in which this process takes place. In higher education, for example, if research is to be digested and policy-making accepted, the participation of the university community and particularly the faculty is necessary.[63]

Participation is said to increase the likelihood that the product of research is relevant to the decision maker's problem, and therefore is more practical, useful and credible, more understandable, and generated at the right time.

Participation can occur at two moments in the research process:[64]

1. In the design of the research, that is, in the formulation of the research question, in the definition of the sampling frame and of instruments, and in choice of procedures; and
2. In the analysis of research findings, including both statistical manipulation of the data and interpretation.

Participation in design may occur when decision makers commission a specific study. It can also be achieved through dialogue with the client at early stages of conceptualization of the research. This approach shows a direct influence of the tradition of project evaluation. The identification of 'clients' or *stakeholders* for the area which the research hopes to illuminate is a significant departure from most fundamental or academic research.[65]

This approach begins by asking: what is the purpose of the research? This purpose is linked to action and to the individuals and organizations that can influence that action. In this sense it is closer to policy analysis than to the traditional investigation of problems for the purpose of expanding knowledge. Weiss[66] claims several advantages for the stakeholder approach:

1. It recognizes the political nature of evaluation;
2. It recognizes that programmes affect diverse groups which may have conflicting interests;
3. It recognizes the multiplicity of perspectives that these groups bring to evaluation and the understanding of processes;
4. It takes evaluation away from its pedestal;
5. It transforms evaluation into a mechanism to provide information as opposed to one to establish truth;
6. It recognizes the evolving nature of programmes rather than focusing only in its final effects;
7. It changes the monopoly over the control of information, providing a voice to a wider range of interest groups;
8. It responds to local interests.

> The stake holder approach changes the role of evaluators. They are asked not only to be technical experts who do competent research. They are required to become political managers who orchestrate the involvement of diverse interest groups. They must be negotiators [...] skillful educators [...]. [67]

There are strong similarities between this approach and that included under the rubric of *strategic planning*. Participation in design can permit the decision maker to change the fundamental direction of the research process.

Participation in analysis is the second avenue for participation; it calls for dialogue between researchers and decision makers at the stage of analyzing the findings. The assumption of this approach is that knowledge is not a product that can be transmitted or exchanged in abstract terms, but rather is 'constructed' through active discussion about the meaning of factual information and evidence. In other words, this approach is based on the assumption that facts do not speak for themselves to inform policy. Instead their meaning is constructed in a specific context, in which facts and evidence have to be contrasted against prior knowledge and experience and must be interpreted on the basis of values and other systems of belief. It is only the active discussion among different groups of evidence and facts that can generate a common understanding—a common construction—about the findings of research. It is only when research results have been 'internalized' by decision makers in this way that they can have an impact on policy decisions.

Some authors consider this participatory approach a form of policy dialogue. It should be noted, however, that there is little in common

between this perspective and the 'social marketing' perspective on policy dialogue discussed earlier under dissemination approaches. The fundamental difference is that in the 'social marketing' approach the emphasis is on 'persuading', 'convincing' an audience of the merits of policy options, or of the likely policy options supported by analysis and research conducted by someone else. In a participatory approach the emphasis is on constructing a shared set of understandings informed by research but not directly drawn from research. The 'social marketing' approach has a referent in a technocratic model, while the participatory approach has a referent in a pragmatic model.[68]

Research on the effectiveness of policy dialogue—either of the 'social marketing' or of the participatory type—is almost nonexistent. There is some research, however, on the impact of participation. A review of the experience with several 'waves' of International Educational Achievement (IEA) studies concludes that the impact was greater where researchers had established links with policy makers:

> After the IEA Six Subject Survey had been completed and two years had passed, I was constantly asked about the 'effect' of the studies. Had they really improved educational practice in the participating countries? I talked with the heads of the IEA National Centers. Of the twenty-one countries, something in terms of impact on legislation, curricular guidelines or policy action had happened in fifteen of them and nothing had happened in the other six. My general assessment of the reasons for this dichotomy was that in the countries where nothing had happened the researchers had no links with policy makers (or were too junior to attempt to forge such links). Again, my impression was that the researchers were either poor communicators with policy makers or were very good academic researchers and disdained the notion of communicating with mere 'administrative' policy makers. Sometimes, the enormous task of communicating with policy makers, where each of the hundreds of school districts is autonomous, was a major deterrent [...] In some instances, it might have been the case that the policy makers just did not want to know the results or had not any established channel for receiving data which they, themselves, had not requested.[69]

Special commissions have been used to review available evidence and to propose policy recommendations. These commissions may request specific studies or may include researchers who are aware of what exists. This approach has been used in the United States, Commonwealth countries and Scandinavia.[70]

The association between researcher and decision-maker to increase the likelihood that each will better understand and respond to the other's concerns, however, assumes that decision makers are highly placed in the organizational bureaucracy:

> This may work in a country where control over education is centralized and administrators are in close contact with those who work in schools. It is less realistic in larger countries where control over education is diffuse and administrators have little contact

with school personnel. Moreover, the Postlethwaite model overlooks the possibility of conflicts of interest among the various parties who are concerned with education and that all parties, not just powerful administrators, might wish to respond to research knowledge[71]

Huberman[72] has carried out 'experiments' that show that it is possible to achieve high levels of understanding of research findings by decision makers with no prior training in research. This is accomplished through the use of a variety of techniques that include close contacts between decision makers and researchers during the project development stage, development of personal relationships, careful choice of means of communication (e.g., oral vs. written) and other 'soft' technologies of communication.

This process of communication includes not only knowledge about the facts of the research, but also facilitates the development by the decision makers of more elaborate conceptual understanding. For this to occur, researchers have to move away from the specialized language and concepts of their discipline. They have to choose examples and metaphors familiar to their audience. And the researchers must focus on the *policy* implications of their research, including issues of implementation of their recommendations. Huberman shows that when links between researchers and decision makers are close, other forms of collaboration develop beyond the life span of the particular project.

Increasing the use of the scientific method

As noted earlier, it is possible to inform policy with research-based information by increasing the research activity of the decision maker. This often requires training of decision makers in methods of research. Training programmes are regularly carried out for lower-level officials by the international and bilateral assistance agencies, both directly or through contractors in the field or operating residential programmes. There has not been any published evaluation of the effectiveness of this training in terms of increased use of research information in policy-making.

Busy high-level decision makers often feel they cannot take time off for training. Instead, work is underway on the re-design of organizations to bring about more use by decision makers of research methods in management and policy formulation. One of the first interventions was the introduction of programmed planning and budgeting systems (PPBS) in private corporations and government bureaucracies. The procedure attempted to:

1. Develop quantitative indicators of the achievement of management objectives;
2. Quantify all the inputs or resources required to achieve those objectives; and
3. Develop analytical procedures to identify those combinations of resources that maximized output at minimal cost.

The procedure proved to be unwieldy and expensive and was abandoned. Some ministries of education actually attempted to implement PPBS: we know of none that have persisted over time. The major difficulty with the PPBS approach was that it was *too* comprehensive. It was too difficult to collect and manage all the information necessary to examine all aspects of the education system.

An important legacy of the PPBS experiment, however, is increasing emphasis on the development of management information systems (MIS).[73] Organizations have always used some information for management; the MIS is intended to make that information available in a way that can be used by decision makers for reviewing and formulating their decisions. The development of management information systems in education is proceeding slowly and is plagued by technical problems (such as poor quality of data).[74]

The most direct inclusion of research methods in high-level policy-making occurs in *strategic planning*.[75] In private corporations and in universities, strategic planning is carried out by high-level managers and executives.[76] In the United States, strategic planning in large school districts (for example, Los Angeles, New York, Milwaukee) has involved representatives of community groups. In both cases, persons with little or no training in scientific research methods have participated not only in the definition of goals, but also in collection and analysis of research information. Typically, 'experts' have been called in to collect information on well-defined problems, such as current levels of student achievement. But non-experts defined the problems, that is, decided on the objectives of the education system and on the criteria to be used in assessment of progress toward those objectives. Similarly, experts organized quantitative data in the form of charts and tables, and may even have calculated some significance estimates, but non-experts decided on the *meaning* of the data, and then generated alternative designs. During this process the role of experts became one of coaching on methods of interpretation rather than on communication of what interpretations should be made.

There is no research as yet on the impact of these methods of decision-making on the quality of education policies. Strategic planning systems

have been criticized in private enterprise as being too expensive and too slow, and often have been rejected by decision makers who resent the increasing controls placed on their decision-making by outside 'experts'.

There is no doubt, however, that policy dialogue and strategic planning assign the researcher a more complex role than that usually associated with policy analysis. Both require much more attention to the structure and dynamics of the organization in which the decision maker works. Researchers must attend to issues of values, culture and politics in the organization. Few researchers are trained to take these kinds of factors into account in their analysis, and even fewer have practised using this kind of information in the communication of what they know about policy options and their effectiveness. One could, therefore, argue that instead of training the decision and policy makers to be researchers, researchers should be trained to be better managers and politicians.

CASE STUDIES: COUNTRY A

Here we will discuss cases in which deliberate attempts were made to inform education policy with research and policy analysis activities in developing countries. Each of the cases is based on documented experiences. We have obscured the identity of the countries and persons involved in keeping with UNESCO policy.

The case of Country A describes how broad public discussions about education issues can generate information useful to policy makers. Research methods were used to identify issues that would focus public attention and to structure the discussion process.

In 1988 Country A was two years into the implementation of a national education policy to expand basic education to nine years and consequently reform the curriculum and make it more responsive to the needs of the economy.

The implementation of this reform was being assisted by a long-term project funded by an international assistance agency (IAA). It became clear to those responsible for the reform that feedback was needed to improve implementation. A consultant from an international contractor organized a national conference to obtain this feedback.

The conference served both as a mechanism to disseminate existing knowledge about critical problem areas of the reform, and to obtain feedback on possible avenues to address these problems.

The first consultation took place in April 1988. The conference was structured to address three major themes:

1. Communication and consultation mechanisms to open up the Ministry to feedback from local schools and communities;

2. Links between education and training and employment; the role of education in employment and training;

3. Curriculum adequacy and relevance for the Country A context.

These issues were selected because prior studies indicated that they were critical areas in the implementation of reform. For example, the need for better communication channels had been established in an earlier evaluation report by an evaluation task force of the Secondary Education Improvement Project:

> Many teachers and parents want to understand the educational programme better. The expansion has come so quickly that many people need further information and support for effective implementation. [presentation at the Conference]

The conference lasted four days. Participants represented a wide spectrum of stakeholders in education reform from the capital city area. They included parents, teachers, principals, education officers, employers in the private sector, politicians, university faculty and central and district public education officers. A total of 116 persons participated in the conference and attendance was very high at each session.

The conference organized participants in smaller groups (fifteen groups of eight persons each) to discuss each of the themes. First, each theme was introduced with a video tape. The video presented interviews of parents and teachers from an array of communities. The objective of the videos was to provoke discussion and bring in feedback, sometimes critical, about the Nine Year Basic Education Programme. The videotaped interviews were chosen to provide this feedback, rather than statistical information, because organizers believed that they would communicate better to the conference audience. The scripts of the videos were prepared on the basis of existing knowledge about the problems confronting reform; they were visual presentations of a report for discussion. The following excerpt from the video on communication illustrates the content of the tapes:

> [voice off camera] It appears that many people see the Government as having 'taken over' the community schools, a belief that has been strengthened by a serious misunderstanding that has arisen over the selection of children to attend secondary schools:
>
> [School principal interviewed]: Well, the reluctance of the community to participate in these schools came because of the mishandling of the Government in the whole thing, in that I think they were not informed at first on how the selection of the 1st Grade was going to be handled. I think if they had tried to inform the public they wouldn't have been so offended. Now I feel that since everything was mishandled so that way they feel that they have to take it back and see what the Government is going to do about the whole situation.

The same video contained an interview with a Junior Secondary Teacher who said:

We as teachers have really got no idea what the Government policy is, or what they are trying to do, because we don't know what they are going to do with the Cs and Ds, whether they will find a school for them...

Videos were followed by panel discussions. Panel members were people who had access to state-of-the-art knowledge about the issues discussed; many of them came from university-based research centres or faculties. The panels were a mechanism to provide research-based information on the subjects discussed. Some of this research was also disseminated in summaries of studies (particularly on the subject of training and employment) included in the packets distributed to the participants.

After the panel presentations, small groups participated in discussions of the issues raised and made recommendations. The results of the small group discussions were then presented in a plenary session. The focus was to identify specific recommendations. In her opening speech, the Permanent Secretary of Education defined the task ahead of the small groups as follows:

We hope you will now work with your colleagues on the tasks set for your group, rather than engaging in endless debates about the 'ultimate' purpose of education. We shall be looking for answers to who, what, and how. For example, in communication, who is it that needs to be informed and who needs to do the informing, what information is needed, and how do we improve information flow and two-way communication. [Permanent Secretary of Education]

The conference was highly successful in that it provided a mechanism to bring formative feedback to those responsible for the implementation of the reform.

Although it would be difficult to capture the full emotional and intellectual involvement of everyone at this conference, it had the atmosphere of an important event. [Conference series chairperson]

Participants gave the conference high ratings in a final evaluation, as summarized in the report of the organizing committee:

Comments were very complimentary, e.g. 'the arrangements and structure could not have been better,' 'group work utilization was excellent,' 'this conference is a long overdue exercise [...] it is forums of this nature that accord further innovations,' 'many a conference should run along these lines for effectiveness,' 'it was structured in a way that made participants feel at ease—people were very actively involved—very well run—very professional,' 'been a useful conference,' 'there were quite a variety of activities keeping the participants busy hence the good attendance on all the conference days,' 'production of materials was good,' 'structure well representative of cross-section of interests—so very

well structured,' 'very worthwhile,' 'we need this kind of conference country wide.' [...] One person called the conference the 'Great Education Debate'. [Report of the Conference Organizing Committee]

This initial conference was followed by two other conferences in other parts of the country. A major outcome of these three conferences is they led to further calls for the formation of a New National Education Commission to review the objectives and programmes of the reform. It also institutionalized a series of traditional 'community meetings' to explain at the local level the objectives of the reform. These community meetings inspired the format of the conference:

One of the strengths of our systems has been the Community meeting—roughly translated as community consultation. We talk through our problems and concerns. Even when solutions are not immediate, the consultation increases our understanding and unity. This is our broad goal for this conference—to come together, to present our different perspectives on the issues in the educational system, and to formulate the general outline of targets, strategies and structures to address these issues. [Permanent Secretary of Education]

At some point in this follow-up process, the Minister of Education became very defensive about the feedback he was receiving, but the other Ministry personnel recognized the importance of what they heard. The initial IAA reaction was concern that so much discussion and agitation had been created. Eventually the value of the conference was widely appreciated. The Minister was subsequently replaced.

The consultative meetings also worked as mechanisms to provide ongoing feedback about implementation activities:

Unfortunately, again, the process was viewed as successful but very risky. It hasn't been continued systematically by subsequent ministry regimes. It did help the curriculum work in concrete terms and so had some technical payoff.[77]

COUNTRY B

This case illustrates the importance of the relationship between research and policy-making as a determinant of use of research products. Some policy makers look for research to justify policies that have already been decided. Researchers unable to communicate in the national language are limited in their ability to understand the culture in which they are working. Relationships of trust with national officials take longer to develop.

Background

Prior to 1989, although a fair amount had been written about education in Country B, empirical assessments were limited to programmes and sub-sectors. Visits by representatives from international and bilateral assistance agencies had reviewed separately primary, technical secondary

and higher education. Their reports provided some empirical data about specific programmes but did not show linkages or problems between levels (e.g., between primary and secondary) nor discuss the performance of the system in meeting national objectives.

The only published assessment of the education system *qua* system in Country B provided little empirical evidence to support its assertions about the quality and operation of schools.

Contacts with Country B colleagues suggested that a number of empirical studies on education were to be found in Country B universities in the form of master's and doctoral dissertations written in the national language. Several efforts were made to generate a bibliography and review this research, but Ministry officials demonstrated little interest in the review and the project was abandoned.

Statistical data about the education system were limited to annual yearbooks that carried data aggregated at the district and state levels. The statistics were published in the second year after their collection, and were not used in the annual planning and budgeting cycles. Instead, information for annual plans and budgets was obtained by each department (primary, textbooks, curriculum, teacher training, secondary, technical education) using their own administrative staff. These data were not collated or kept from year to year, and therefore were not used for evaluation of the Ministry of Education. Statistical data from universities were limited to enrolments by programmes. There were a number of institutional studies, some in the form of dissertations, but these had not been collated and no system-wide evaluation based on statistics had been carried out.

There were, of course, evaluations of the education system. In Country B as elsewhere, education is a major determinant of the life chances of individuals, and therefore often in the public eye. Newspapers regularly carried comments, mostly critical, comparing the declining quality of the education system to previous, 'golden' years. Most of these criticisms were limited to single policies or to single programmes. Critiques of the system focused on single factors such as lack of commitment by teachers, or lack of parental support, but there were no analyses available that indicated how the situation had come to be the way it was, and therefore how to overcome it. There was no large vision of what an education system should be, nor any plan of how to get there.

The impetus to reform

The turning point was the appointment in December 1986 of a new Minister of Education. The new Minister was distinguished by several unique attributes. He had for several years served as Country B's

representative to UNESCO, where he had read widely in research and theory about education and development. His appointment as Minister coincided with the second term of a powerful President, who shared his belief that education was Country B's key to economic growth and political democracy. The period began with a renewed commitment by the government of the United States to support social development in Country B.

Shortly after his appointment, the Minister announced in a press interview that he was going to be a candidate for a seat in the parliament, and urged his fellow cabinet members to do the same. Cabinet members in Country B are not required to hold an elected office; the Minister's bold announcement attracted considerable public attention, and several of his cabinet colleagues also launched campaigns.

The Minister's campaign speeches focused primarily on the conditions of education in Country B, and his vision of a new education system that would prepare the country for the twenty-first century. The Minister campaigned hard, using the media to build a high level of visibility among his constituency.

He attracted even more attention when he was elected and his fellow cabinet members were not. Items about the Minister appeared almost daily on television, radio or in the English and national language newspapers during the first six months after his election. As all of his comments dealt with education, the public's awareness of problems and opportunities of education in Country B rose quickly.

The Minister then proposed a National Conference on Education that would 'explore carefully, minutely, painstakingly the entire heritage of our country and region. It is a great heritage by any standards' [national newspaper]. At the same time, he sharpened his criticism of the existing system.

The product of the Conference was a list of 147 recommendations for change, some of which were explicitly contradictory. The empirical basis for the recommendations is unknown, as the Conference documents make no reference to any studies or even statistics (other than rates of growth of enrolments) to support the assertions that are made.

Shortly before the National Conference, the Minister hired as his deputy a person trained in curriculum in the United States, who had just finished a three-year period with the World Bank in Washington. The deputy was given responsibility for planning and organizing the process of reform, and was in daily contact with the Minister.

The Deputy Minister proposed the creation of a planning unit that would respond directly to the Minister and would prepare strategic plans for implementation of reform projects, and which would monitor all

aspects of progress in the reform. The proposed changes would have required a major change in the structure of the Ministry of Education. The political process to gain official approval for these changes, and to budget for new positions, was estimated to require two or more years. In order to begin the planning process immediately, the Minister obtained financial and technical assistance from an International Assistance Agency (IAA). The IAA suggested the employment of BRIDGES Project staff (the acronym stands for Basic Research and Implementation in Developing Education Systems) and funds for the required tasks. In March 1988 a BRIDGES-sponsored team came to Country B to design the new education planning unit.

This was not the first contact between IAA-financed consultants and education planners in Country B. Consultants from another organization worked in Country B in 1984 and 1985 doing basic studies on repetition, developing a basic information system and providing training in planning procedures. Beginning in July 1986, consultants from the BRIDGES Project began working with the Ministry on further improvements in the information system. Assistance was provided in the design of new procedures and instruments for data collection, and training was provided in the use of microcomputers for data entry and simple reporting. These tasks required field visits to several states and interviews with Ministry and state-level education officials on current issues and problems of planning. Consultants together with Ministry staff carried out interviews with all major officials (about 40) in the Ministry on the decisions they make each year, and on the information required and used in making these decisions.

These interviews provided a great deal of information about perceptions of the current performance of the education system by Ministry officials. Much of this information is contained in trip reports by consultants written in English. The reports include a fairly comprehensive critique of the performance of Primary and Secondary Education in Country B, but no attempt was made to carry out a systematic analysis and description of problems. One of the early consultant reports noted that there appeared to be a great deal of sensitivity about discussions of policy issues such as goals, inequity in allocation of resources, and inefficiencies in procedures. His report suggested that 'to open the work with a full-blown 'sector analysis' would be the worst possible strategy of assistance; the analysis should be done cooperatively and over time.'[78]

The strategy chosen (in 1986) was to develop a system of information, including procedures for information distribution and utilization, that would allow Country B officials to detect for themselves the problems

and accomplishments of their system. BRIDGES consultants at this time had relatively easy access to Ministry staff in their offices.

Meanwhile, the Deputy Minister put together a staff of persons with little or no prior experience in the Ministry. His chief planner, for example, was seconded from the Ministry of Planning. The head of the Curriculum Reform unit was contracted from a university. His advisory board was made up of university professors and officials, representatives from other ministries in the government, and the directors-general of Planning and Statistics in Education.

The sector analysis

The consultants' contract with IAA specified a series of activities (about fifty activities were listed), among them technical assistance in research and evaluation. The latter activities included: 1. Development of staff capacity; 2. Educational sector assessment; 3. Nine sub-sector and policy evaluation studies.

With respect to the sector assessment, the contract stated that the contractor would provide within three months a plan for implementing the sector assessment, including identification of critical policy issues to be addressed and data requirements. The contract also specified that the contractor would be responsible for producing the final report in English.

The contractors' proposal included two pages on the sector assessment. It would be carried out following the guidelines in the IAA Sector Assessment Manual. The assessment would review existing published and unpublished material in the national language (and English) on education in Country B, in order to identify goal statements, descriptions of organizational structure, finance and operation, and empirical studies of performance and outcomes. It would compile and synthesize existing data bases, with special attention to issues of access, internal efficiency and quality, and quality of learning outcomes. Detailed information would be collected on costs and finance, with attention to possibilities for mobilization of local resources and cost recovery. The Assessment team would include pertinent officials from the educational planning unit of the Ministry of Education and other government employees, and consultants. Each of the external consultants would be paired with a Country B counterpart. Most of these would be planning unit employees.

Each stage of the assessment would be reviewed with cognizant MOE and IAA project coordinators. The proposal stated as a goal "ample dissemination [of the assessment] to relevant audiences in both the national language and English".

The following steps were taken to prepare for the assessment. First, efforts were made to identify all published research (in English) on education in Country B. Those (few) publications or dissertations that promised some overview of the education system were read and abstracted.

Second, resident contractor staff in Country B identified and recruited for the assessment MOE employees and other persons who could serve as counterparts for external consultants. This proved to be a difficult task.

Third, discussions were held with IAA and planning unit officials, especially the Minister's deputy, about their objectives for the sector assessment. Finally, two meetings were held in the United States among external consultants to discuss the general objectives of a sector assessment and the specific objectives of the assessment in Country B.

Two issues emerged as the date for the assessment came closer. First, there was some disagreement about objectives. The Minister's deputy pointed out that the plan for the reform had already been laid out. What was required was not an identification of the fundamental problems facing the education sector of Country B, but rather a set of procedures to implement the activities being formalized in the reform law. The IAA agreed with this objective for the assessment, but indicated that it was planning a new basic education project for several years hence, and therefore would also like information and analysis to identify possible activities for new projects. The IAA also indicated that it would appreciate information to evaluate the importance of its massive ongoing project of primary school construction.

Discussions with MOE officials and the deputy did result in a change in the themes covered by the assessment. The topical organization originally proposed for the final assessment report was changed to match more closely the organization of the MOE. Working guidelines for external consultants were rewritten to reflect these changes in the task.

The second issue was with respect to identification of counterparts for the external consultants. The resident advisors for the Project were placed in offices with the National Education Research Center (NERC) and the newly-created Education Planning Unit (EPU), physically separated (by about 4 km.) from the offices of the operating divisions (primary, secondary, teacher training, textbooks, vocational-technical education) of the Ministry. The consultants were encouraged by MOE officials to draw their counterparts from the professionals in these offices.

Only one of the staff of the NERC had basic skills in quantitative analysis. All of the staff were trained either in psychological or anthropological methods of inquiry that did not require large samples and sophisticated measurement. Most of the 12 professionals were completing master's

or doctoral degrees in Country B universities. They had taken courses in statistics but had never used them. There were no microcomputers in the NERC offices, nor anywhere else in the Ministry of Education (apart from the Statistics Department and the Minister's office). The prior research product of the NERC consisted of studies of teachers' and students' attitudes with respect to MOE policies and programmes.

Members of the NERC had limited or negative relationships with other MOE staff. Unlike regular MOE employees, few NERC staff had been trained in teacher colleges, they were expected to pursue graduate studies in one of the social sciences, and they were paid salaries equivalent to the salary schedule of university faculty, significantly higher than their MOE colleagues.

NERC and EPU employees commented to the external advisors that they already had a full load of responsibilities, and that in the past they had been given extra compensation for participation in short-term activities not included in their job descriptions. They demonstrated little interest in the kinds of issues the assessment was intended to study.

No formula was ever found to provide extra compensation to NERC staff without violating IAA guidelines. Nor was it possible to locate any other education research group in Country B. In part this was because the consultant team had limited contacts and time, in part it was because the Minister's deputy discouraged direct contacts with the universities.

In the meantime, the date for initiating the sector assessment approached. No suitable counterparts were found among staff of the operating divisions of the Ministry. NERC and EPU staff were instructed by their superiors to cooperate with the assessment. In addition, the team hired as a local consultant an economist trained in Great Britain who worked as a free-lance consultant.

Implementation of the assessment

Work on the assessment began on 15 October 1989 with a meeting of all the participants. The team that was assembled included 13 staff members from the NERC and EPU, one other local consultant, and 11 external consultants. Of these, four were resident advisors. Four of the 11 external consultants had prior experience in education in Country B. One was fluent in the national language.

The Minister's deputy appeared briefly at the first meeting to welcome the consultants, but left without providing any specific instructions for the assessment. The assessment team leader, who had participated in several assessments in other countries, described the usual objectives and the procedures followed. Team members were provided with copies of the

42 projects developed for the reform, and copies (in English) of several speeches by the Minister describing the objectives of the reform. Several hours were spent discussing the overall strategy for the team's work, procedures to be used and deadlines.

Team members were encouraged to spend the first two weeks of their four-week assignment collecting information about the education system. They were invited to make use of a small library of documents and previous studies that had been collected from the Ministry and IAA offices, with some publications brought from the United States, including two sector assessments from other countries. They were encouraged to make contact with officials in the Ministry of Education's operating divisions. The Country B counterparts were asked to serve as translators when necessary. Team members were asked to make reports of their interviews and other activities; to that end the team leader scheduled weekly meetings.

The team leader, and the chief of party for the resident advisors, also met with the Steering Committee organized by the Minister's deputy. The Committee, chaired by the deputy, included: the director of the EPU; the Undersecretary for Planning (previously head of the Statistics Department); the Vice Dean of a faculty of education in a leading university; the acting director of the Center for Curriculum Development (another IAA-funded project, also located outside the operational divisions of the MOE); and the Director of the Center for Higher Education Research (seconded from the NERC to head this new organization set up by the Minister). The Steering Committee asked to review plans for the assessment including proposed interviews, initial drafts, final drafts, and recommendations resulting from the chapters of the report.

Three problems surfaced in the first two weeks of the work of the team. First, external consultants found it difficult to arrange and carry out interviews with Ministry of Education officials in the operating divisions. Several factors contributed to this difficulty, for example telephone communications between the NERC/EPU offices and the rest of the MOE were limited and unreliable.

Second, NERC staff increasingly found it difficult to collaborate with external consultants in arranging and carrying out interviews. This left the consultants essentially unable to communicate with educators outside that limited number which could speak English. Consultants found themselves limited to interviews with university-trained academics and high-level MOE officials. Efforts to engage NERC staff more fully, through joint planning of activities or offers of training in research or data analysis, were not successful. Third, discouraged by difficulties in

communication and transportation, several of the less-experienced external consultants began to reduce their efforts to gather information. One of the external consultants arrived in Country B with the outline of his report essentially written. He said he could tell immediately the nature of the problems facing the education system of Country B, and proceeded to write his report. Another of the consultants relied exclusively on a single English-speaking informant for all of his information and judgments about the education system. A third consultant spent most of his time analyzing on his personal computer a set of data he had obtained in the first days of the assessment.

By the end of the first two weeks, however, it was possible to share with the Steering Committee some of the initial findings and conclusions of the assessment team. This was carried out in the form of a brief (two-page) listing in English of the major findings and conclusions, with a verbal presentation that included use of charts showing projected enrolment flows given different assumptions about promotion and repetition rates. For the most part the meeting was dominated by the deputy, who made suggestions with respect to specific issues that should be addressed.

External consultant members of the assessment team insisted that they be invited to meetings with the Steering Committee, or that the Steering Committee attend their meetings. The Committee refused both suggestions, but the deputy did attend another meeting of the team, and spoke at length about his (and the Minister's) objectives for the education reform, and described the forty-two projects that he had designed (prior to the arrival of the consultants) to implement the reform.

The effect of this meeting was to redefine the purpose of the sector assessment. The deputy asked that the assessment investigate and specify ways in which the reform plan could be carried out. The assessment would identify key obstacles to implementation, and specify ways to overcome these obstacles. The assessment document would be used as an implementation plan.

As work continued on the assessment it became clearer that there would be little or no opportunity to engage staff of the Ministry of Education in preparation of the various chapters. In addition, members of the NERC and the Educational Planning Unit had less and less time to spend with their foreign counterparts. Efforts to prompt discussion of chapters during weekly meetings yielded little.

All chapters of the assessment were completed in draft form by 15 November, with the exception of chapters on higher education, and on the economics of education. The chapters were reviewed and critiqued by the assessment team leader, and returned to the authors for revision. By

1 December, the team members had returned edited versions of all chapters including the higher education chapter but excluding the economics of education chapter, and a summary chapter had been prepared.

With the exception of the observations made in the chapter on management, the assessment was not particularly critical of the education system of Country B. The problems identified were ones that the Ministry and IAA had themselves made on previous occasions.

The chapter on management of implementation, however, provided a detailed critique of the organizational and procedural shortcomings of the central bureaucracy of the Ministry of Education. The chapter ended with a prediction that the Ministry would resist change.

> Change will not be easily achieved with a bureaucracy committed to preserving existing procedures. The system is inefficient at achieving the task traditionally assigned to it, let alone handling innovations. The problem is that this highly organized and powerful bureaucracy will not readily agree to its own reform.

Impact of the assessment

Highlights of the draft were discussed with the Minister. He asked for a translation of the Summary of the assessment, and the chapters on The Policy Framework of the Reform, Basic Education, and Management Issues in Implementation of the Reform. Response to the translated material came from the Minister within three weeks. He proposed minor changes in wording in several of the chapters. All the changes proposed had the effect of softening criticism of the existing operation of the education system, and of providing a more favourable prognosis of the implementation of the reform. Verbal agreements to changes were obtained from the authors.

At this time the Minister proposed, to the Chief of Party of the consultant team, a meeting of the Steering Committee with the directors of the Curriculum Reform unit and the Policy Research Unit to discuss the translated chapters and the Summary with their authors. Included in the group of authors were six Country B officials, five of whom were members of the NERC or the Educational Planning Unit. The Chief of Party submitted a memo to the director of the NERC reporting on the Minister's request and proposing that the meeting be held within the Unit.

There was no immediate response to the request. The Chief of Party and the head of the assessment team were asked to make a presentation of the report to the Assessment Steering Committee, who made brief comments about various chapters. Members of the Committee were eager to

know how the report had been received by the Minister. On several occasions the Director of the NERC was asked when a meeting would be possible. He was unable to promise a specific date, claiming that staff were not available on one occasion, on another claiming that the Minister had not authorized distribution of the national language version of the report.

In the meantime, the Minister of Education asked the Chief of Party to prepare a summary version of the report in the national language, which could be printed in an internal bulletin of the Ministry of Education. The summary was written and translated and sent to the Minister within two weeks, but it was never published. No one besides the Minister ever admitted to having seen the summary statement, and the Minister brushed aside the question in meetings with the Chief of Party.[79]

Apart from minor suggestions for revision (e.g., change of dates, correct names for offices) the only substantive reactions to the assessment report came from the Minister. Each of the chapters of the report included a list of additional studies to facilitate the implementation of the reform. The Minister culled from the chapters the fifteen studies that would be of most importance to him, asking the Chief of Party to indicate which of these would be of highest priority, and how they should be carried out.

This request from the Minister led to a series of meetings between consultants and staff of the NERC. The Minister's list of topics was shortened and recombined into five major topics. The Minister approved this revised list of topics, and funding was secured from IAA.

It was not possible, however, to carry out these studies with the participation of the NERC. Staff members professed interest in the topics but argued that they should receive extra compensation as the research work would be in addition to their regular duties. IAA officers adamantly opposed any additional payments on the grounds that this was contrary to IAA policy. The relationship between the consultant team and the NERC became increasingly tense.

In June 1990 the Minister decided to move the Educational Planning Unit to the main building of the Ministry of Education. The position of Undersecretary of Educational Planning was created. All the consultants moved into the Ministry building. The Secretariat of Educational Planning was given three directorates: Information (or Statistics), Planning, and Research. As the Information and Planning units already existed, their directors continued in place. The Research director, a former head of a teacher training college, was appointed by the Minister. There was no research staff.

Given a lack of staff, and no possibility of working with researchers at the NERC, the consultants decided to go outside the Ministry for

assistance. They proposed to invite the participation of universities in carrying out pilot studies that would provide some training for fledgling researchers hired into the Ministry, and which would provide consultants with professional counterparts.

The new Undersecretary was asked to review the research topics, and suggested some changes in the sequence in which studies would be carried out.

Requests for proposals (RFPs) were prepared for eight topics. Each of the RFPs described the research problem, specified the kind of information required in the form of research questions, indicated the methods that might be used, asked for a written report and a conference presentation, specified the deadline for completion of the study, and specified a level of compensation.

Proposals for all eight topics were submitted by university professors and were reviewed by the Undersecretary and staff. Five of the studies were completed within the specified period, by the end of October. Several meetings were held with the researchers to clarify the interests of the Planning Unit and suggest procedures, and later to ask for clarification of findings. The meetings brought the researchers together with the Ministry of Education for the first time.

The findings of the five reports were summarized briefly in the form of charts and graphs. In early November the Director of the Research unit together with the Chief of Party presented the findings to the Minister. He urged continuation of the research activities, with particular attention to the issue of private tuition and the identification of the most effective teaching practices. The Minister asked the Research Director to prepare proposals on how to study those issues.

In an effort to insure the utility of the continuing research, the Research Director organized a meeting to which he invited representatives from all primary and lower secondary divisions of the Ministry. Ten persons attended, and provided suggestions as to what they would like to know to improve their work. They also validated the results of the pilot studies on private tutoring and teacher practices. Participants in the meeting asked to be informed of the progress of the research. They also noted that this was the first time in their long years in the Ministry that they had discussed research on ways to improve schooling.

Field work on a national sample survey study of determinants of school achievement began in March 1991. Work on a sample survey of parent, student and teacher involvement in private tutoring began in June 1991. The final report on the School Achievement study was delivered in

October 1993, translated into the national language and circulated by the Ministry of Education. The tutoring study did not reach the final report stage.

COUNTRY C

This case illustrates how it is possible to involve decision makers in the initial design phase of research. Such involvement can contribute to a fuller understanding by external researchers of the context in which the research will be carried out. It also contributes to the development of relationships of trust, and later 'ownership' by the decision makers of the research results.

In November of 1990 the Development Assistance Agency (DAA) mission to Country C approached the Harvard Institute for International Development, headquarters of the BRIDGES Project, to help them and the Ministry of Education better understand the problem of primary grade repetition in that country.

Three years earlier the DAA had designed a project to improve the quality of primary education. This project was aimed at reducing repetition rates through a number of interventions, including the provision of specially-designed textbooks to children in public primary schools. Two years into the project, however, preliminary feedback indicated that repetition rates were not changing. A new director of the office of Human Resource Development at DAA questioned the apparent failure of the project to reduce repetition rates. The director could not understand why a multimillion-dollar project had been launched to solve a problem (repetition) without adequate research to identify the causes of the problem. The apparent failure of the project to reduce repetition rates suggested that a study was needed to better understand the conditions leading to repetition.

The BRIDGES project was a DAA-funded project which had successfully conducted a number of education research studies in several continents. Because of this experience, the DAA mission to Country C approached the director of the project to request the design and implementation of a small study about why children repeated in Country C. Only limited funds were available when the initial contact was made. As a consequence it was decided to follow a two-step strategy: to begin with a pilot study which would identify promising policy variables and allow BRIDGES staff to develop a design and a set of instruments, and then to launch a second study, should additional funds become available, using a larger probabilistic sample. This study would follow the experience of

BRIDGES in Egypt, Pakistan and Thailand, where it had carried out studies using samples of 500 schools, 1,000 teachers and more than 10,000 students tested in several grades and subjects.

Because the DAA mission did not obtain the funds for the second stage of this strategy during the life of the BRIDGES project, only the smaller, pilot study was implemented.

The first task for BRIDGES was to negotiate with the DAA about the need to have the study serve a purpose for the Ministry of Education and also to have the direct participation of Country C counterparts in the design and implementation of the research.

Two persons were assigned by the Minister as counterparts to the study: they were the director and her deputy of the evaluation unit of the Basic Education Project referred to earlier, implemented by the Ministry with funding from the DAA.

In preparation for the study, BRIDGES contacted an education planner at UNESCO's regional office. This planner had a long-standing interest in the issue of grade repetition in the region. Staff from Harvard spent a day with the planner discussing possible issues to be investigated in the study and exploring hypotheses which could be used to design the study. At the same time, HIID staff undertook a review of the literature on repetition, using the resources cited in two clearinghouses: ERIC, covering educational research in the United States, and REDUC, covering educational research in Latin America. This preparatory work informed the research team of the state of the art on grade repetition in Latin America and elsewhere.

Procedure of the research

In February of 1991 an HIID staff member went to Country C to coordinate the study. His staff included a former consultant to HIID in several projects, and two Country C counterparts. In Country C, preparation for the study began with interviews with Ministry officials, ranging from the Minister and Vice-Minister to school supervisors, principals and teachers. The purpose of these interviews was to understand the views of these groups with regards to repetition, to what extent they perceived it as a problem and what they considered its causes to be. The research team also wanted to familiarize themselves with the frames of mind of these groups and with the type of language they used to analyze education problems. The objective was to learn what was already known about the problem, and to get a sense of the kinds of hypotheses that should be used in designing the study, as well as a sense of the type of evidence and

language that should be used in communicating with this group once the study was finished.

A number of issues came up at these interviews which allowed researchers and policy makers to know each other better and to be more responsive to each others' needs. For instance, one of the concerns of the Minister of Education was that the report would take too long to be useful during his tenure. The consultants offered to have a draft report with recommendations in less than five months. When the Ministry understood that the researchers wanted to obtain candid interviews with teachers, officials facilitated access to the schools without intervention or presence of the school supervisors.

All staff in the Human Resources Office of the DAA were interviewed, and the education officer accompanied the research team in some of the initial interviews with Ministry staff. During this consultation with public officials, the DAA official asked several times, 'When are you actually going to begin the study?' In the official's eyes this initial set of interviews with decision makers and implementors of education policy was not a part of the study.

Using the results of the preparatory design described earlier, and the results of the interviews, the research team prepared a theoretical model of repetition. This model emphasized actions that could be taken by the Ministry of Education or by teachers in classrooms.

Because resource constraints indicated that it would be possible to work with only a small sample of schools, the study focused on rural primary schools, where national statistics indicated that the prevalence of grade repetition was higher. The sample drew students from two grades that seemed critical on the basis on national statistics: 1st and 3rd. An intentional sample of 40 schools was chosen (high and low repetition) in four districts of rural Country C. The key information to be obtained included: whether children were repeating; their achievement in a literacy test; interviews with teachers, principals, children and their parents. Information covered all of the variables specified in the model elaborated on the basis of interviews and the literature review. The design 'over-specified' the model with variables because this phase was seen as the first phase of a two-step process. One of the research goals was to narrow down the variables in the model to the best predictors, to be used in a large-scale second step of the survey.

A group of teachers was hired and trained to collect information. Questionnaires and interviews were designed with Ministry collaboration—including the two Ministry staff who were members of the research team—and with feedback from the teachers who would work as

interviewers. Once instruments were field-tested, data were collected in March 1991 in 40 schools in the selected departments.

Data were computerized, cleaned and analyzed in a record period of three months. The deadline for completion of the report was taken very seriously, and the analysis was designed to fit within the time constraints. The objective was to present a report in a timely fashion to the Ministry, and this meant that the researchers had to concentrate on the main line of analysis which was most directly relevant to policy. The Country C counterparts came to Harvard to participate. The UNESCO planner also joined the team briefly during this period.

Dissemination of findings

A number of products were prepared to present the findings of the study. They included a final report with an executive summary, a shorter version of the study and summary for wider dissemination, a slide-show presentation summarizing the findings and policy recommendations, and a press release. In addition, a Geographic Information System presentation was prepared to illustrate the impact, at the national level, of some of the policy recommendations of the study, such as targeting multiple-grade schools for training and appointment of additional teachers. A coordinator was hired to arrange presentation of findings to key audiences in Country C.

Prior to presenting these findings, drafts of the report were circulated among senior officials in Country C for feedback. Circulation of drafts increases the probability that reports will be read and facilitates informed discussion sessions.

In June 1991 the Harvard team, the counterparts and the UNESCO planner went to Country C to participate in five presentations and discussions of the findings and recommendations with these key audiences:

1. High-level decision makers including the Minister and Vice-Minister of Education, the President's advisor on social policy and other key senior government officials;
2. School supervisors and other Ministry of Education personnel;
3. Ministry's Center for Research on Curriculum and Instruction. They were responsible for developing new textbooks and for organizing teacher training programmes to implement the new curriculum;
4. Members of the research community, teachers' unions and the press;
5. DAA personnel.

All reports were written in the national language, with the exception of a summary report in English for DAA staff and a final report written after these presentations.

The study summarized its recommendations in seven key areas:

1. Increase in-service teachers' training in classroom management, including techniques for multiple-grade classrooms;
2. Develop instructional materials that permit teachers to provide differentiated instruction;
3. Increase the number of teachers in small schools to reduce the number of multiple-grade classrooms;
4. Improve the ability of teachers to identify students with learning difficulties and establish remedial programmes to reduce the failure rate of these students;
5. Provide training to encourage teachers to raise their expectations for all students;
6. Provide preschool experiences that improve students' learning capacity;
7. Continue to carry out research that identifies problems that can be resolved by ministry action.

Impact of the research

The Ministry has taken steps to implement these seven recommendations. The most significant one was to make multiple-grade schools, particularly those with few teachers, a priority for new teacher appointments and for teacher training. What is most interesting is that in spite of the fact that a different political party won the Presidential elections, with the consequent changes in the Ministry of Education, attention to the problem of repetition has continued, as has the priority given to multiple-grade schools.

Perhaps one of the most significant consequences of this activity is that a group of local university researchers participated, many of them for the first time, in the various policy studies which were commissioned by the redesigned project to improve basic education. This established new relationships between the university community and policy makers in the country.

The DAA, as a result of the mid-term evaluation of the basic education project, decided to redesign and rebid the project. The new design called for a number of studies following the same format and process used by

the HIID team in this study of repetition. As part of this project, the local teacher training university was contracted to do follow-up studies to examine the determinants of student failure and dropout.

This study of repetition served as a model. It illustrated to the Ministry that it is possible to have information generated from analysis emphasizing policy variables and that it is possible to have a successful partnership with university-based analysts. Senior ministry personnel also learned that some of their fears about the dialogue sessions undertaken to discuss the research with different stakeholder groups (i.e. teacher unions) were unfounded, and that in fact this exchange facilitated further negotiations between unions and Ministry authorities.

This experience ended with a paradox for the Harvard team. Two days prior to the team's return to Country C to present the report, the Vice-Minister of education called HIID requesting that the results of the study not be disseminated to the different groups invited for dialogue sessions. The prior experience of the Ministry with studies and reports was that those were given to the most senior authorities, and that these authorities decided how much should be disclosed to others. Most prior reports funded by the DAA had been written in English, so this automatically limited access to their content. The 'problem' with this report was that it was written in the national language. The HIID was proposing to bring several hundred copies for distribution and discussion with several hundred people. This was a new scenario for the Ministry and the uncertainty about the political ramifications of this strategy created fear.

As the Harvard team did not agree to censor some of the findings from the public presentations, the team was invited to come to Country C for one day, to make presentations to the senior leadership of the Ministry. After that meeting the Minister decided to authorize the rest of the scheduled sessions, but without endorsing the report or its recommendations.

As the consultants finished their last presentation, the private secretary of the Minister called them to an emergency meeting. A car was sent to ensure their immediate arrival at the Minister's Cabinet. There they were met by the Minister and a delegation of the national press. The Minister thanked the research team publicly for their contribution to the development of education in Country C and gave each member of the research team a diploma in beautiful calligraphy stating his gratitude. The press took numerous pictures of the Minister as he shook hands with each member of the research team. The next day several major newspapers reported that the Minister endorsed a major study which had made 'path-breaking advances' to solve the problem of repetition. Newspapers, radio

and television reported the findings of the study, many of them quoting verbatim from the press releases and from the executive summaries.

Those diplomas now hang on the walls of the consultants' offices as a reminder of the unexpected twists of the relationships between researchers and policy makers. The team stayed in touch with that Minister for a while during his tenure and he sent several delegations of visitors to Harvard University to learn firsthand about the study. He also talked about the experience of the study at the regional meetings of Ministers of Education organized by the regional office of UNESCO. The study in Country C entered the 'regional experience' through several mechanisms. The results were cited in several publications on the subject of repetition and two other governments invited HIID to replicate similar studies in their countries. The lessons learned implementing the dissemination plan also helped the HIID education group to advance their own thinking about policy dialogue, and helped in the design of future projects in countries D and E.

COUNTRY D

One of the functions of policy research is to define alternative solutions to critical issues. To do that, the research must generate definitive findings. It must show that A is related to B, or that changes in C will affect D. Research that generates no significant findings is useless to the policy maker. This case illustrates the importance of building a strong constituency for the findings of a research study, and of then delivering clear-cut positive findings.

In May 1991 the Minister of Education invited HIID to visit Country D to discuss an agreement to assist the newly elected government in a number of education activities:

1. Development of a statistical information system;
2. Technical assistance to develop a system to measure school quality;
3. Development of a training programme in school administration for municipal personnel, to facilitate the decentralization process which transfers school administration to municipal authorities;
4. Design and implementation of a study of grade repetition.

The study of grade repetition was somewhat of an afterthought in the initial negotiations of the collaboration. The Harvard team was just completing the repetition study in Country C and brought it up as an example of an analytic activity which could support policy reform. The Director of the Ministry of Planning and the Vice-Minister of Education liked the

approach followed in Country C and requested a similar study for Country D. This section of the paper reports on the process and results of conducting that study of grade repetition.[80]

In September 1991 the HIID began activities in Country D. A consultant met with senior staff in the Ministries of Education and Planning in order to develop a work plan. One significant change to the work plan from the earlier conversations in May was the elimination of technical assistance to measure school quality. The development of this system had been commissioned to a local think tank in social policy. This group and the technical personnel had not requested the assistance from HIID and perceived the proposal as an expression of lack of confidence by senior Ministry staff.

Technical staff in the Ministry requested feedback about the achievement tests they were developing. The Harvard consultants indicated that the tests were unlikely to be sensitive to the kinds of factors that are affected by Ministry of Education policies. This criticism was leaked to the think tank preparing the test, and construed to suggest that the relationship would be one of competition rather than collaboration, diminishing further possibilities of collaboration with the study of grade repetition.

In October 1991 an HIID consultant arrived in Country D to coordinate the study of grade repetition. Upon arrival he found that negotiations between HIID and the Ministry had been delayed and that a contract had not yet been signed. At that time the Vice-Minister of Education brought up again the need for coordination between the activities of the think tank and those of HIID. The director of the think tank indicated that collaboration would not be feasible given the advanced state of their project. This reinforced the perception of rivalry between local teams and the Harvard team. For instance, a nationally representative sample had been drawn for the quality study, and the think tank challenged the Harvard team to have an equally large and representative sample, something beyond the objectives of the original design and of the level of resources allocated for the activity. The Vice-Minister suggested that HIID assist the think tank with the analysis of the data, but this suggestion was rejected on the grounds that HIID had no particular expertise beyond that of the professionals of the think tank.

While the think tank and HIID concluded that they would not collaborate in the implementation of the studies, senior Ministry staff continued expecting that coordination and collaboration would take place. A few months later, when it became obvious that Harvard was not collaborating in the analysis of the data collected by the think tank, some senior staff in

the Ministry perceived this as a breach of contract by Harvard. This created an unfavourable climate for the study of repetition which was under way.

Procedure of the repetition study

The HIID consultant directing the study contacted a group of researchers at the research center of the Pedagogic University who had been working on the theme of automatic promotion. The Vice-Minister, however, did not trust the technical competency of this team and created obstacles for their incorporation into the project.

At the end of October the HIID consultant interviewed staff in several offices in the Ministry of Education to incorporate their concerns and needs for information into the study. A set of questionnaires was designed and field-tested. Just as the instruments were ready, the Minister and Vice-Minister of Education resigned, along with the person who had been assigned by the Vice-Minister to be a counterpart for the study.

The new Minister and Vice-Minister had no particular interest in the study. Negotiations over the contract and the incorporation of the researchers from the Pedagogic University were further delayed. In spite of this, the study continued.

Field work began in March 1992, with participation from the Pedagogic University and from the Evaluation Unit in the Ministry. Data were collected successfully, generating renewed interest within the Ministry in the study results. Data were computerized in the Ministry in about a month and were then taken to Harvard for analysis. From that moment on data analysis was split: qualitative analysis was conducted by the researchers of the Pedagogic University, and quantitative analysis took place at Harvard. A representative of the Ministry was invited to participate in the analysis at Harvard, and the personal secretary of the Minister was selected for this purpose. This choice of person alienated the technical divisions in the Ministry which had collaborated with the study.

Because this activity had not been anticipated in the work plan and budget, Harvard could not spend time collaborating with the researchers doing the qualitative analysis in the Pedagogic University. These too felt left out of the project.

In the summer of 1992 the Ministry requested a presentation of preliminary results of the study at a seminar in Country D to discuss the quality of education. This meeting was attended by representatives from an international development bank, education researchers and Ministry staff. The analysis of the data was not yet completed and the presentation

disappointed many of the seminar's participants. This bad initial experience in dissemination diminished interest in the study and the chances of further diffusion of the study results.

At a later date the final results of the study were presented to the Minister, Vice-Minister and senior Ministry staff. These people did not find in the results sufficient elements to support policy change. Their criticisms of the study were as follows:

1. The results of the study are inconclusive;
2. The results of the study have no explanatory power;
3. The study is based on data of very poor quality, and the recommendations, though good, are not based on the data;
4. The study did not include the qualitative analysis prepared by the local researchers, which is perceived as lack of confidence in local capacity;
5. It is felt that the results of the study are not up to the expectations generated by a University with Harvard's prestige.

In contrast to the limited dissemination activities organized by HIID, the team of the Pedagogic University carried out its own dissemination of the qualitative section of the study. They presented the study at a national symposium on education quality and at several meetings with the departmental secretaries of education. At these meetings, the emphasis was on the results of the qualitative analysis, as the team had not participated in the quantitative analysis and did not understand these results sufficiently well to present them appropriately. In addition the Pedagogic University prepared a special report on repetition addressed to primary school teachers. Some 26,000 copies of this report were printed but could not be distributed as intended because of lack of funds.

Among the factors pointed out as limiting the study's impact:

1. Only three copies of the final report were delivered to the Ministry authorities. Many people who collaborated with the study never saw a final report;
2. The researchers of the Pedagogic University did not receive a copy of the study;
3. Harvard's final report did not acknowledge the participation of the researchers from the Pedagogic University;
4. The private secretary of the Minister who participated in the quantitative analysis at Harvard did not contribute to the dissemination of the results.

Impact of the study

Within the Ministry of Education the study had no impact on policy and was soon forgotten. All the Ministry staff interviewed in 1994 in preparation for this report were unable to recall a single finding of the study. The theme of grade repetition, however, entered the debate about quality of education. The former director of evaluation in the Ministry stated that until the study was done, the theme of repetition had not been considered a problem related to education quality. This division had worked closely with the policy of automatic promotion but had centred it around the theme of student assessment as a problem of internal efficiency, without considering that repetition might indicate lack of opportunities.

A more significant impact took place among the community of education researchers, particularly in the Pedagogic University, who began to recognize the importance of policy-oriented research. Two of the researchers who participated in the study decided to pursue graduate studies in education policy at Harvard. One of them is now an advisor to the Vice-Minister of Education.

The study also generated a new sense of standards of quality among the collaborating researchers. This group of researchers saw the study as an opportunity for technology transfer, and learned from their direct involvement in instrument design, sample selection and data collection.

COUNTRY E

This case indicates how it is possible for research to affect policy even when there is no explicit cooperation from the bureaucracy of the ministry of education. Especially in times of political change, policy-making moves out of bureaucratic structures. In those moments research can play an important role of identifying and clarifying major issues, and suggesting alternative policy choices.

In the summer of 1992, the HHD responded to an invitation of the Minister of Education to visit Country E and discuss the terms of an agreement to provide assistance to the education reform process.

Country E began the transition to democratic rule in February 1989. One of the first acts of the democratic government was to appoint an advisory committee for education reform. This Committee spent two years deliberating on the general directions of the reform, which were outlined in a brief book. Some members of the Committee, and some in the Ministry of Education, felt that the Committee had not been able to propose a concrete diagnosis and plan of action. One member of the

Committee, also director of a private research center with a long and respectable history in Country E (ERC), suggested that Harvard University might provide technical assistance.

After an exploratory visit by HIID to discuss possible terms of collaboration with the Committee and with the Ministry, the International Assistance Agency (IAA) mission to Country E agreed to fund a review of the education sector.

In September 1992, a five-person team from HIID arrived in Country E to collaborate with the private research center ERC in a review of the education system. The team of analysts included five staff from HIID and ten from ERC. An effort was made to obtain participation of technical staff from the Ministry of Education in the preparation of each chapter, but these counterparts were not made available. Only one person from the Ministry was assigned to serve as counterpart for the study.

The first task of the team was to interview members of the reform advisory committee and senior ministry staff, to identify the main areas of interest to be addressed by the report. It was agreed that the report would address the following topics: 1. The impact of economic integration on the education system; 2. Basic education; 3. Secondary education; 4. Student assessment; 5. Teacher training; 6. Bilingual education; 7. Non-formal education; 8. Higher education; 9. Management and decentralization.

The report was produced in five weeks. The primary sources of information were: interviews with education administrators, teachers and supervisors; field visits to schools, teacher training centers and universities; re-analysis of existing data (including the database of the Ministry of Education and of an earlier study conducted by ERC on teacher practices); and review of existing research and reports.

The participation of ERC in this project was crucial to build on existing knowledge. The ERC is the local chapter of the Latin American network of research and documentation centers (REDUC) and has probably the best collection of educational materials in the country.

During preparation of the report, members of the research team met with the advisory committee several times to present advances in the analysis and to discuss some of the topics as they were analyzed.

At the end of five weeks a final report was presented to senior staff of the Ministry of Education and to the reform advisory committee, as well as to representatives of international development banks who were at the time designing projects to support education reform activities.

The nuances of local politics were not immediately apparent to the Harvard consultants. Gradually it was learned that the advisory

committee saw themselves in opposition to the more permanent staff of the Ministry of Education. All members of the Committee were people committed to the democratic project, and in opposition to the regime that had been in power for so many years. Many of the more permanent staff of the Ministry of Education had been appointed under that regime.

Shortly after the completion of the report, however, the Minister of Education resigned as a result of conflicts with his own party related to the upcoming presidential elections. The members of the reform advisory committee resigned in solidarity with the Minister.

It became clear to the director of the ERC that the more permanent staff of the Ministry of Education had no interest in diffusing the results of the study. Therefore he published, out of the ERC, a booklet based on the executive summaries of each chapter in April of 1993 and later on published the whole report in the form of a book. Some 1,500 copies of the report were published and distributed, many of them for sale. Newspapers based a series of articles on the report, a number of public figures made public statements based on the report, and the universities began a process of internal discussion on directions for university reform based on the study.

The recommendations of the assessment had the most impact[8] in basic education. Primary education was expanded in line with the recommendations of the assessment. This led to a consequent curriculum change and the teacher training system was reformed. The Ministry of Education began to implement a plan of administrative restructuring.

The HIID had done little work on mapping the relevant stakeholders for education reform, and instead took the advisory committee and senior Ministry personnel as the key audience for the report. Consequently, HIID limited the presentation of results of the assessment to these groups. In this sense too the partnership with ERC was central for gaining sensitivity to the larger political and social issues of the country, and to follow up with the report and ensure access to it after it was finished. The fact that the ERC director had multiple roles—as member of the advisory committee, where he had responsibilities for education policy, as director of ERC, as coordinator of ERC participation in the study (and orchestrator of HIID's participation in the activity) and as advisor to the Minister of Education—facilitated the impact of the assessment. Without the active participation of a figure like this it is unlikely that a report produced in so short a time—with the consequent limited opportunities for foreign analysts to interact with different local groups—would have had any impact at all.

Impact of the study

The study report has been widely used as a source document by the Ministry of Education, both at the most senior level and in each of the Departments. The report has been used to further the proposals of education reform and to justify the need for reform. The following features of the assessment are seen as central to the impact it had:

1. The systematic presentation and clarity of the report in the diagnosis of problems and in making policy recommendations;
2. The assessment, beyond mere description, of the main problems and the consequent consideration and recommendation of policy options to address them;
3. The presentation of the report in the national language and at a level that allowed it to be understood by politicians and the media, and dissemination of the ideas contained in the report;
4. The brevity and clarity in the presentation of the topics, and the transparency of the analytical methods used;
5. The credibility and prestige of Harvard University and the fact that this Institution was perceived as being 'above' local politics and controversy.

A former minister of education reported:

> The basic approach of the report was provided by HIID, which is very important. Because here sometimes people are afraid or have difficulties to give concrete opinions about things. I cannot say that this report is anything extraordinary, but it is extraordinary in the sense that it is the only group of concrete and clear proposals which was made about education and the reform at the time. Because even the advisory committee and other units of the Ministry they know the problems but can't talk about them with clarity, they don't risk to propose any recommendation [...] this report is very systematic.

A member of the advisory committee put it this way:

> The value of the assessment lies in the synthesis it offers, in the options it recommends, in some of the affirmations made which illuminate the policies that should be implemented [...] I think it has been an important work as a reference point, it has moral authority and has been extensively cited.

COUNTRY F

In the summer of 1993 HIID responded to a Request for Proposal (RFP) from the IAA mission to Country F. The RFP called for an assessment of the education sector aimed at identifying options and priorities for policy reform.

HIID saw this request as an opportunity to open up the space for education policy discussions to a wide range of people with different political views. A long period of violent conflict in Country F both expressed and stimulated practices of resolving differing political perspectives with high levels of violence. After this conflict there were few spaces left for political dialogue and negotiation.

In September 1993 a consultant from HIID arrived in Country F to coordinate the preparation of the assessment. The HIID proposal emphasized a highly participatory approach. Twenty-two of the 35 technical advisors who wrote the assessment were citizens of Country F. Collaborating in the preparation of the assessment were two institutions with credibility among different political groups: a prestigious private university (PU) that had been a source of criticism of government policies, and an education foundation set up by the business community (BUSCOM). The Ministry of Education was a full participant.

> The Ministry of Education was an important partner, with both officials and technical staff participating through many hours of interviews as well as information and logistical support. The Minister met with research teams every week for several hours from October to December. [Country F participant from PU]

In addition, each of the technical groups conducting the ten studies which were part of the sector assessment organized focus groups to explore issues and conclusions regarding each subject analyzed. For example, the group working on the non-formal education chapter organized a three-day seminar, to which more than 30 representatives of non-governmental organizations (NGOs) active in non-formal education were invited to discuss the principal questions of that study.

At the beginning of the project the HIID consultant had conversations with the IAA and the Ministry of Education aimed at agreeing on the distinction between clients and sponsors of the activity. Harvard proposed that the clients would have to be key stakeholders for education reform in the country. The IAA would be the sponsor but not the prime client for the project. This had implications for how project resources would be spent. For example, it meant that the final reports would be written in the national language, rather than in English, departing from usual practice in IAA-funded projects of this type. It also meant that the primary effort of the technical team would be in dialoguing with these stakeholders, rather than with IAA staff. The Director of the Office of Education in the IAA mission shared this vision and supported this approach.

A similar dialogue took place with the Ministry of Education. Given that there would be elections a few months after the completion of the

assessment, it was agreed that the focus of the project should be on educating a wider group of stakeholders on the directions for education reform. There was uncertainty about who would win the elections and consequently about who would be the education authorities in the upcoming government.

Procedures of the study

In co-ordination with PU, BUSCOM, IAA and the Ministry of Education, HIID organized an advisory committee for the assessment. This committee included some 50 representatives of more than thirty organizations, including the Ministries of Education, Planning and Finance, Congress, a formerly armed group in opposition to the government (the principal opposition force), the Chamber of Commerce and the association of exporters, the association of industrialists, teacher unions, public and private universities, NGOs and other relevant groups. The committee met with the professionals writing the chapters of the assessment every week between September and December of 1993.

While it was made clear to the committee that the final report would be the responsibility of the technical teams, in practice the weekly meetings served two purposes. On the one hand they helped the technical teams writing the assessment understand better the perspectives of the advisory committee for policy-relevant analysis. At the same time, the members of the committee were better able to ground their discussion on concrete issues and evidence as these were advanced by the technical teams.

> The final result was the outcome of a long process of exchange of ideas, or multiple rounds of feedback, of examining information from primary sources and experience, and of multiple drafts of each chapter. [President of BUSCOM]

After initial discussions with the advisory committee and after initial interviews with key staff in the Ministry of Education, it was agreed that the assessment would cover ten topics:

1. An overall synthesis;
2. A study of the macro-economic trends and the implications for human resource requirements;
3. A study on the costs, benefits and financing of education;
4. A study on pre-school and basic education;
5. A study on secondary education;
6. A study on technical and vocational education;

7. A study on higher education;
8. A study on non-formal education;
9. A study on management education;
10. A study on management and decentralization of education.

The difficulties of bringing together to the same table participants who had taken different sides during the conflict should not be underestimated. Even though peace agreements had been signed almost two years prior to beginning the assessment, there had been no opportunities since (and for many years during) the war for pluralistic committees to discuss national policy issues. The participation in the activity of different institutions such as the Ministry of Education, BUSCOM, PU, IAA and Harvard University made the activity sufficiently interesting for different groups to agree to participate. Several of them indicated repeatedly that the reason why they agreed to participate is that the mix of sponsoring institutions suggested that there was no ideological or party bias in the nature of the activity.

The organizers tried to maintain the content of the conversations at the same level above local politics. For example, at the first meeting one of the participants, a former leader of the armed opposition, suggested that before we could agree on a path for education reform the committee should agree on a vision of the new man for Country F. The Harvard study director replied that the objective was more modest, to find agreement on 'small problems' of the education system, 'nuts and bolts' issues.

At the time some felt disappointed to find out that this committee would not tackle the 'big' questions such as the type of society that the education system would be building, but later on it became clear that some of the 'small problems' were not so small, and that it was possible to find agreement on them without addressing the reasons why they were perceived as problems by various groups. For instance, all agreed that the fact that 15 per cent of the children never entered first grade, and that one in four children among the poorest 20 per cent of the population never entered school, was a problem that needed urgent attention. In private conversations with members of the committee it was clear that this was seen as a problem for very different reasons by different political groups, but the group concentrated on the problem and possible solution rather than on the reasons and the value systems by reference to which these were seen as problems.

Each chapter of the report was reproduced as a stand-alone document, with its own executive summary, to facilitate access to the information by specialized audiences. A special synthesis was prepared of the ten

chapters, using many graphics and visual displays. A computerized graphics presentation was prepared to facilitate the exposition of the summary and of each of the chapters in different meetings. A press release was prepared for meetings with the press.

Procedures for dissemination

In January of 1994 HIID, and its institutional partners PU and BUSCOM, conducted a series of workshops, endorsed by the advisory committee, to present and discuss the results of the assessment with key groups of stakeholders for education policy. A strategy was designed for disseminating the findings of the assessment.

One of these meetings was with the presidential candidates, all of whom showed great interest in the subjects being discussed. The day after this meeting, the principal opposition candidate appeared in national news echoing some of the key themes and recommendations of the report. From that moment on education reform became a central issue in the electoral debate.

Another meeting was with senior officials in the Ministry of Education. As a result of this meeting, the Minister decided to organize an eight-hour workshop to discuss the results of the assessment with key managers of the Ministry. A meeting was held with 200 staff—proportionately a small number in a Ministry with 7000 administrators—of the Ministry, who came from the capital and from different regions of the country.

Meetings were held also with the press, with the Chamber of Commerce and the private sector, with the public and university communities, and with the Ministry of Planning. Some 500 copies of the final report were distributed upon request. As a result of this demand, the editorial center of the PU published 1,500 copies of the report in 1994.

Impact of the study

Less than a month after the presentation of the results of the assessment, the Minister of Education announced a modification of the curriculum of secondary education, in line with the recommendations of the assessment. The Ministry also began to implement a programme of administrative decentralization, along the lines suggested in the respective chapter of the assessment. A group of private businesses actively lobbied Congress, using the respective chapter of the assessment as their principal source of arguments, to prepare the decree to implement a law creating a national institute of technical training. They lobbied based on the recommendation

of the assessment which proposed a coordinating and regulatory role for the State, and responsibility for actual delivery of the training for the private sector.

After the new government took office in the summer of 1994, the Minister of Education was asked to continue, an unusual move of administrative continuity in Latin America. Most of the staff in the Ministry remained. The former director of planning, who had actively participated in the advisory committee, became the Vice-Minister of Education.

Some of the areas of policy reform which can be linked to the assessment include:

1. The Ministry has made expanding access in rural areas a policy priority. New sections and new teacher appointments are being made which give priority to the rural areas;
2. The Ministry has begun to experiment with school autonomy on a pilot basis; schools will be given a modest fund which teachers, principals and parents will apportion based on what they perceive as the greatest needs to improve teaching effectiveness;
3. The Ministry is making teacher training a priority area for the design of large education projects with funding from international development banks;
4. Administrative decentralization has continued, transferring responsibilities to the departments as suggested in the assessment. The Ministry of Planning finally approved this strategy in November of 1994;
5. Parent and community participation has been fostered by not only involving them in the management of school funds, but also establishing focus groups in communities to consult on education issues. The Minister wants to carry on a series of public fora to inform parents and the public at large about the conditions of schools and the main problems confronted by the education system. At the same time the Minister wants to rely on focus groups to receive feedback from teachers;
6. Supporting innovations at the local level, the Ministry is supporting a number of model schools with specially-trained teachers to serve as trainers.

The content of the sector assessment has also been used in negotiations between the Government and the multilateral financial institutions as they design education improvement projects for $100 million.

Perhaps the most striking consequence of the assessment was that it released a process of public discussion of education issues. Several organizations in the country produced their own reports on the problems of the education sector and on possible solutions to these problems (all of these organizations had participated in the advisory committee of the assessment, and some had direct participation in the technical team writing the assessment). A conservative think tank on economic and social policy produced a policy brief on education and human resources, and sponsored several paid pages in the national press about the problems and options to improve educational opportunities. The director of the social policy sector of this think tank, who was a consultant working on the chapter of administrative reform in the sector assessment, became a vocal spokesperson for education issues in several national fora.

> Active participation by widely disparate groups in Country F has facilitated the analytical work and acceptance of its outcomes. A precedent-setting, much needed, national dialogue on education issues and policy is now underway in Country F. [Official from IAA]

> Through the participatory methodology the sector assessment became a process of pluralistic reflection, and an opportunity to consider options for education reform. The final report has an excellent content, insufficient in itself to launch a rapid change in the education system, but of critical value to impress in the highest levels of decision-making in the country that education in Country F should have the highest priority, and that a change is necessary not just in the funds assigned to the sector, but in the systems, procedures, decentralization and general improvement of teaching. [President of BUSCOM]

The PU produced, in addition to the publication of the sector assessment as a book, a special issue on education in a journal which regularly discusses social and economic topics. This issue drew directly from the chapters written by PU staff in the assessment.

A think tank closely associated with the Christian Democratic Party produced two publications and sponsored a national forum of dialogue on education following the completion of the assessment. These publications drew on the assessment document. The senior person in charge of social policy in this center—who had participated in the advisory committee—said that the meetings of the committee had worked as an advanced seminar generating much deeper understanding of education issues in the country. Similar comments were made by the person responsible for social policy in the conservative think tank:

> The participatory methodology permitted a valuable transfer of technology; it provided the persons involved with an opportunity for professional enrichment. The conceptual and analytic skills of the national teams were expanded through collaboration with international consultants who found in each working team a counterpart with information, a

national perspective and a space for transfer of technology. In this way the study achieved the best of international assistance and generated conditions favourable to implementation of the specific recommendations. [Staff member from think tank]

The education sector assessment in Country F served as an opportunity to establish new partnerships between university faculty and government officials, between the public and private sectors, between political parties, the business community, religious organizations and community groups. It stimulated a process of public dialogue about education and it opened new avenues to expand educational opportunities.

The selection of national institutions to work as technical counterparts was a great success. The partnerships HIID established with BUSCOM, PU and the various directorates of the Ministry of Education provided opportunities for participation from the outset. The configuration of an advisory committee with representatives of different sectors such as the teacher unions, the private sector, NGOs, also promoted levels of participation without precedent in the education sector in this country. [Minister of Education]

CONCLUSIONS

What lessons can be drawn about how to increase the use of research-based information in the formulation of education policy?

Lessons for researchers

A first lesson is that the relationship between research and policy is not easy or linear. The expectation that a single piece of research or analysis can lead to policy improvements is not consistent with many characteristics of the research enterprise and the way decisions are made.

At the same time, the situation is not hopeless in terms of expecting decisions to have an analytic or research base. It is possible to organize systematic activities to gather information and analyze it in ways which can address very directly policy issues of interest to decision makers. In almost all cases research is insufficient to decide policy, but it can inform and enrich debate about problems, their causes, possible solutions and methods of implementation.

This enrichment is the objective of what we would like to call *educational policy analysis*. The term policy analysis is already in use in many of the international and bilateral assistance agencies, and there are programmes to teach policy analysis in a number of universities in Europe and the United States. But research specifically undertaken to inform policy is still fairly uncommon in universities in developing countries, or in the research departments in ministries of education.

Policy analysis serves two functions. It can be carried out solely for the purpose of informing a particular policy issue, but also can be organized to translate findings from academic research into frameworks helpful for policy-making. The lesson that can be drawn here is that much of the loose coupling between research and decision-making reflects the structural characteristics of each of these activities. Policy analysis can be a missing link which, if inserted in the chain, would increase the use of research-based information in decision-making.

We use the term *education policy analysis* for two reasons. First, because we believe that policy for education is different than that for other sectors, and requires a special approach. Education affects almost all members of society in a direct way, and as a consequence it has a very long list of stakeholders. The organization of education differs from that of most other enterprises: its 'workers' are professionals who enjoy a high degree of autonomy, and yet most education systems are highly centralized. It is this contradiction that generates much of the 'loosely coupled' nature of education organizations. At the same time, these organizations are highly visible and often highly penetrated by external stakeholders pushing specific policies. An analysis of which policies are most likely to be implemented and effective requires political as well as technical knowledge.

We refer to *education policy analysis* also to call attention to our belief that the acquisition of those perspectives and skills required to make more effective use of research-based information will require extensive education, both of those conventionally called researchers and those called decision makers. This education will necessarily go beyond that currently offered in training programmes based in the social sciences, although the social sciences will provide a starting point.

The development of policy analysis requires training a cadre of professionals with specific skills to apply the methods of social science research to the investigation of problems from the perspectives of decision makers, with the specific aim of generating knowledge which can illuminate policy choices in the context of specific constraints. The cases examined showed that the policy analysis carried out by external research institutions, in collaboration with local research entities and with Ministries of Education, provided an opportunity for 'on the job training' and served to demonstrate a policy orientation in research and analysis.

The cases do not provide direct evidence about the merits or demerits of providing formal training to policy analysts, but at one level it is obvious that this type of training is necessary. All the consultants who were brought in to the countries to provide technical assistance were

hired because of their highly specialized training in education policy received in formal graduate education programmes. At another level it is apparent that providing formal training in-country will take time and that the lack of institutionalization and the highly individualistic nature of some of the decision-making processes discussed earlier casts questions on the impact of a long-term strategy to train individuals in policy analysis.

A training strategy does not have to rely exclusively on long formal programmes. Projects which provide opportunities and bring in assistance to learn by doing demonstrate how research can inform policy. There are also a number of short training workshops in policy analysis offered around the world which can serve this purpose. Nevertheless, it is probably a good idea, as a long-term strategy, to increase the supply of people with solid, formal—and extensive if necessary—training in education policy analysis in order to raise the level of the education debate in national and international fora.

Policy analysis skills can be developed not just in formal training programmes, but also 'on the job' as researchers participate in projects specifically designed to inform policy. The education sector assessments carried out in countries B, E and F provided an opportunity of transfer of technology. Researchers in these countries learned to apply their own skills within the context of policy analysis.

The process used to carry out policy analysis is very important. Investigation of problems begins not just with an understanding of the research question, but with a political analysis of the interest groups concerned with those questions, and the establishment of a process to integrate these stakeholders into the investigation. Failure to do this at the beginning in Country B contributed to the lack of support for the Sector Assessment. Communication and dialogue between researchers and stakeholders are central to policy analysis in a deeper sense than is implied in the dissemination of research results. This dialogue must begin as researchers begin to conceptualize the problem to be studied, and must continue throughout the investigation and extend to the presentation of results.

Analysts and decision makers benefit from opportunities to know each other from the early stages of the analysis. This will allow each group to appreciate the other's perspective, to find a language that can communicate effectively, and develop trust. The initial interviews with decision makers in Country C and Country D are examples of these opportunities, as are the weekly meetings between the technical team preparing the sector assessment and the advisory committee in Country F. Meetings

with the Steering Committee in Country B were too infrequent to develop a common language and relationships of trust between researchers and policy makers.

Policy reform is a process based on social interactions. Communication is a key aspect of these interactions. There is nothing mechanical about how knowledge can impact decisions, particularly when different people and groups are involved in the processes of knowledge creation and decision-making. Social events to facilitate communication and interactions are central to promoting research-based policy reform. The round of conferences held in countries A and F allowed originally conflicting groups to define common problems, and to share information previously closely guarded.

These social interactions are also mediated by political and cultural variables. The most successful cases examined in this text illustrate the importance of local agents or counterparts who can work as moderators to promote change. Failure to identify counterparts in Country B contributed to the isolation of the Sector Assessment team.

The most effective agents in our cases were outside government, located in non-governmental organizations, universities or the private sector. Governments certainly had to be involved as most policy decisions involve government action, but the pressure for change came from establishing partnerships between Governments, foreign consultants and other stakeholders in society. The inclusion of agents from groups in opposition to the government, as in countries E and F, generates a dialectic which, if correctly managed, can lead to the emergence of mutually-acceptable policy options.

The case of Country D illustrates the risks of a strategy that relies too much on Government counterparts and is insensitive to the larger political and social issues mediating relationships between the Government and other institutions. This finding challenges the wisdom of a strategy of technical cooperation that relies on foreign technical consultants who team up solely with government counterparts.

Because of the time constraints which surround much policy analysis, it is important to have access to existing research and knowledge about the education system. The most successful cases discussed in this text relied on access to prior knowledge about a subject. For example, the study of repetition in Country C was facilitated by the literature review of this subject. This was possible because of the existence of research clearinghouses in Latin America and the United States (REDUC and ERIC). Similarly, the sector assessment in Country E was conducted in such a short time because of ready access to documentation available in ERC,

the local chapter of REDUC. In the same manner, the sector assessment in Country F profited from a well-organized documentation center and information system in the Ministry of Education. Lack of access to research in the national language in Country B restricted the range of insights of the external researchers.

The process of communication between researchers and policies exceeds the images of 'dissemination'. Communication of results is of vital importance, but that demands much more than distribution. Reports have to be presented in a language and format which is accessible to the audience. This includes such apparently obvious issues as the actual language used to present findings. Many reports are available in languages which are not accessible to those they intend to reach. Also, the type of evidence and the format used to communicate the findings is important. The cases examined in this study illustrate how investments of time and energy at the early stages of the project help in the realization of an effective strategy to disseminate the results of studies. These include using videos to illustrate classroom practices in Country A, slide shows to summarize study results in Country C, or computer-generated graphics to summarize results of the sector assessment in Country F. They also include extensive use of executive summaries and press releases, briefings and seminars with different audiences, and large-scale distribution of final reports. A technique used successfully in most of the cases discussed here is the circulation of draft reports to enlist the interest of decision makers, to prepare them for final briefing meetings and to improve the format of presentation of the reports.

A key mechanism in cases A, C, E and F was the use of the media to disseminate the findings of research and analysis. In all cases this required deliberate efforts to prepare messages which could capture the basic findings of the study and present them in terms which could reach a wide audience. This involved preparing written briefs for the media, slide shows and computer graphics, and arranging specific sessions to meet with journalists in press conferences and individual interviews.

A key factor in the dissemination of the research results is the participation of groups outside government. Governments are often reticent about spreading reports which call for policy change. In the cases examined, governments did not take the initiative to disseminate research reports, either by benign neglect (such as in the case of Country B where the Minister wanted to avoid any criticism of his reform, or in Country D where the Government was satisfied with only three final reports of the study) or by active opposition to widespread dissemination, such as in the cases of Country C and Country E.

The involvement of local groups in the research was central to the dissemination of the results. In many cases it seemed as if these groups were fighting political battles with the Government to make the study results known to the public. In Country D, while HIID was captured by the Government strategy to restrict access to the study, the Pedagogic University disseminated the results of the portion of the study in which they had participated. In Country E, the ERC published a large number of copies of the report for sale and distribution to the general public in response to the Government strategy to restrict access to the report. In Country F the University (PU) published a large number of copies of the report, although the Minister of Education actively supported the dissemination of the results.

The participation of groups outside government is crucial to increasing the impact of analysis on decision-making. The reason is that governments know they cannot afford to ignore attention to issues addressed by the analysis and research. When a number of actors and contenders in the policy process know about a researched topic, the opposition can try to obtain political gain from raising the topic, and the government then has an incentive to take the initiative in addressing the issue. In case F this was very clear; the results of the sector assessment were presented to all presidential candidates, and the next day the principal opposition candidate was echoing some of the main findings of the study. After this it would have been hard for the Government to ignore the findings of the assessment.

In addition to local groups outside government, another important group which was reached in the most successful cases discussed here includes international organizations, specifically UNESCO's regional office for Latin America, the World Bank, the Inter-American Development Bank and the United States Agency for International Development, which funded most of the studies examined. In all cases deliberate attempts were made to inform these organizations of the results of the studies. However, because of the gap between policy and implementation in these organizations, our emphasis was in establishing a dialogue with the officials responsible for operations rather than with those responsible for policy in these agencies. In some cases representatives from these organizations participated in the research process—as in the study of primary grade repetition—or in the policy dialogue process as in the sector assessment in case F. International organizations used the information contained in the documents for project design in countries D, E and F.

But 'dissemination' of research results does not necessarily lead to social or organizational learning. Learning is more likely when the

organization (such as the Ministry of Education or different groups of stakeholders) participates in the generation of that knowledge.

Participation can include input in the design of the study, discussions of the data analysis and design of a strategy to present results. The cases examined in this text illustrate how each study involved different degrees of participation from various groups. In Country F, for instance, a significant number of national researchers participated in carrying out the sector assessment; perhaps it is these researchers who learned the most from the activity. To a lesser extent, groups such as the advisory committee and the Ministry of Education participated in the study in frequent interactions with the technical team. The fact that both of these organizations 'endorsed' the study, and have incorporated it as the basis of recommendations for future action, suggests that they learned significantly from the experience. A number of groups were the target of a number of strategies of dissemination of research results (e.g. presidential candidates, the general public, those who bought and read the book published with the final report). It is more difficult to assess what they learned from the activity, but quite likely the 'messages' these groups received were reinforced by other consistent messages (redundancy) which were part of the dissemination strategy and in some cases by informal advice from trusted sources who had participated more closely in the assessment (i.e. each member in the advisory committee was a point of contact and an entry point with a larger network of stakeholders).

It is worth noting that the sector assessment in Country F was the most participatory of the experiences examined in this text, and also the one where the impact of the study in policy is most obvious.

Lessons for documentalists

There is an abundance of research in the world. At the same time, many researchers and decision makers are unfamiliar with what has been done even in their own country. Of course, new research products should be captured, archived and made available. But what most Third World educators lack at the present time is not access to the *latest* information, but to *any* information based on research.

The volume of research is so great that it is becoming increasingly difficult to retrieve information from archives and other storage systems. The problem will not be resolved by providing everyone with expensive, large-memory, high-speed computers, or with elaborate software packages that permit 'searches' through the data. Only the most sophisticated researchers can make use of these techniques, as in addition to hardware

and software they require an elaborated conceptual framework that identifies what data is useful for information, and what kind of information is useful for policy.

Researchers trained solely in the social sciences enter education with conceptual frameworks of limited utility for policy analysis. Most decision makers, even those managers with long years of experience in the education system, lack an articulated understanding of how the education organization operates and how it achieves its goals. Our schooling system has produced specialists with narrow bands of knowledge; education requires a systemic understanding not currently being taught in most universities.

Education documentalists might, therefore, consider that their fundamental task is not so much to diffuse data and information about specific programmes in this or that country, but rather to contribute to the development of conceptual frameworks and systemic views of education. This is a difficult recommendation to make: many of us have an aversion to 'theoretical' documents that are highly abstract and have little relevance to the operational problems of our schools. But this is a commentary on the kinds of documents that have been produced in the past, rather than on the importance of knowledge building. The documents of the future have to both be rich in facts and provide conceptual frameworks for the understanding of how those facts might differ across a range of contexts.

We believe that those who manage education systems know best the kinds of problems that these systems face. At the same time, because they are so embedded in the present system, these managers are least qualified to indicate ways to overcome these problems. The kinds of documents we should be preparing, and the kind of dissemination of research-based information that is required, is that which uses the managers' or decision makers' knowledge of how the system works, but which brings in the outsider to suggest new designs for operation. The dominant pattern today is the reverse. Researchers trained in social science do the analysis (overlooking much of the rich detail that those who live in the system recognize), and managers and educators provide the new designs (unconsciously recreating the structures and procedures that are the cause of today's problems).

We recommend, therefore, two lines of endeavour for documentalists. First, the revision and elaboration of the taxonomies used to catalog documents, and application of new technologies for information retrieval. Most taxonomies were developed at a time when the volume of documents to be catalogued was only a tiny fraction of what exists today. At

that time it was assumed that the boundaries of knowledge had been defined.

The taxonomies were well-designed for their time. They helped librarians remember the content of documents, and established the physical location of the document for retrieval by users. But the boundaries of knowledge have been broken in many places. It is difficult to catalog new knowledge in old taxonomies. The sheer volume of documents to catalog is overwhelming. Librarians have to limit access to storage areas as documents misplaced by users are essentially 'lost'. The old technology of storage and retrieval acts to reduce use of information.

The new technologies of information storage and retrieval both permit, and require, new taxonomies for the categorization of information and the cataloguing of documents. We believe these taxonomies should be designed taking into account the conceptual categories of decision makers. Previously, documents were catalogued using the academic disciplines as a base. This limited the direct access of decision makers, reinforced their dependence on researchers, and contributed to the reduced use of research-based information in policy-making.

The challenge will be to design taxonomies and systems of storage and retrieval that have 'open structures', that is, that can continue to grow as the volume of information continues to expand at a geometric rate.

Lessons for decision-makers

As noted earlier, research suggests that there are few real decisions, and therefore few decision makers, in a large organization. Policies may be made, but what actually happens is the result of many other factors than the manager's decision. This is troublesome, but may be an indication of a vital and learning organization, rather than a symptom of failure. Organizations in rapidly-changing or turbulent environments cannot be managed by fixed rules and regulations. Policies, if they are made, have to be seen either as temporary tactics and therefore subject to change, or as broad strategies which will be interpreted and applied in different ways according to emerging probabilities.

This kind of management requires much more information than does management by rules. Because popular experience in organizations has associated 'research' with expensive, lengthy and often abstract inquiries, the term does not fit with the concept of a learning organization that is clear about its long-term objectives, varies its immediate programmes, and keeps track of what happens in order to continually improve (and change) its movement through history. The term 'policy analysis' may

better convey the notion of what kind of information should be collected and how it should be used.

The proper management of education systems requires a large volume of information, too much for one person. The learning organization is one in which every person is a decision maker, in which every person uses data to inform decisions. The role of the executive shifts from decision maker to organizer of strategic thinking. The minister's focus shifts from 'fire-fighting' and day-to-day management to long-term analysis of the emerging probabilities for education and its contribution to society. Her or his view of education expands, and as it does the level of detail of information necessarily diminishes. Trees disappear as the forest comes into view. This kind of leadership requires information about alternatives that do not yet exist, at least in the system in question.

In conclusion, what is needed is more research, but not necessarily more Researchers. What is needed is greater use of the scientific method in the process of policy formulation and decision-making. This will require closer links between researchers and decision makers. Each will have to change to make these linkages possible. Researchers will have to learn the conceptual frameworks and language of decision makers. This means moving out of narrow disciplines and taking bold steps away from the security of techniques that promise rigour. Opportunities for social interaction are called for, as well as meetings and conferences which bring together researchers and decision-makers. Decision makers, for their part, will have to change the authority structure of their organizations. What is required is to flatten the hierarchy to permit greater horizontal communication within the organization, fostering the kind of dialogue that leads to definition and acceptance of common objectives, and full sharing of information about policy options. The combination of scientific method with open communication will generate the learning organization.

NOTES

1. The authors' original title was: 'Using research-based information in education policy and administrative decision-making: implications for researchers, decision-makers and documentalists'. The authors appreciate the valuable assistance of Magdalena Rivarola and Claudia Uribe, who in the summer of 1994 carried out interviews and prepared reports that served as the basis for the sections on two of the cases discussed in this text. We thank also Wes Snyder at Ohio State University for detailed information which was used for one of the case studies. We are also grateful to the staff at the International Bureau of Education and to James Trostle and Carol Weiss at Harvard University for valuable feedback on a draft of this text.

2. In Latin America, for example, the university reform movement in Cordoba at the beginning of this century legitimized universities as centres of political debate, placing many of them in opposition to the State.
3. This is consistent with what Jurgen Habermas has called a pragmatic model, in opposition to a decisionistic model, which assumes science is value-neutral, or a technocratic model, which assumes that scientific knowledge has intrinsic normative authority. cf. J. Habermas, *Toward a rational society*, London, Heineman, 1971. The pragmatic model suggests interactions of reciprocal influence between politicians and researchers in a democratic society. Some have suggested, however, that in 'more restricted decision-making surroundings the decisionistic or even technocratic models may apply'. cf. O. Lampinen, *The utilization of social science research in public policy*, Helsinki, Government Printing Centre, p. 26.
4. D. Chapman and L. Mahlck, *From data to action: information systems in educational planning*, Paris, UNESCO: International Institute for Educational Planning.
5. T. Welsh, The politics of valuing in information system construction, *in*: Chapman and Mahlck, op. cit., p. 92-116.
6. Carol Weiss, The many meanings of research utilization, *Public administration review* (Washington, DC), September-October 1979, p. 426-31.
7. See also T. Husén and M. Kogan, eds., *Educational research and policy: how do they relate?* Oxford, Pergamon Press, 1984.
8. Weiss has also proposed the need to reconceptualize decision-making, arguing that many decisions are not 'decided' in the sense of a key person pondering various options and choosing one of them, but instead decisions are made by 'accretion' as a result of the process of exchange among interest groups. C. Weiss, Knowledge creep and decision accretion, *Knowledge: creation, diffusion, utilization* (Newbury Park, CA), vol. 1, no. 3.
9. Husén and Kogan, op. cit., p. 69.
10. Ibid., p. 74.
11. T. Husén, Educational research and policy-making, *in*: T. Husén and N. Postlethwaite, eds., *International encyclopedia of education*, Oxford, Pergamon Press, p. 1857-64.
12. H. Levin, Why isn't educational research more useful? *Prospects*, UNESCO Publishing, Paris, vol. 8, no. 2, 1982, p. 157-66.
13. Ibid.
14. J. Nisbet, J. Megarry and S. Nisbet, eds., *World yearbook of education 1985: research, policy and practice*, London, Kogan Page, 1985.
15. R. Shavelson, Contributions of educational research to policy and practice: Constructing, challenging, changing cognition, *Educational researcher* (Washington, DC), vol. 17, no. 7, 1988, p. 4-11.
16. This was mentioned particularly of the United Kingdom and French experiences. Husén and Kogan, op. cit., p. 58-60.
17. This concept was proposed by Maurice Kogan in his study of the links between research and policy in England. M. Kogan et al, *Government's commissioning of research: a case study*, Department of Government, Brunel University, England.
18. I. Meny and J.C. Thoenig, *Politiques publiques*, Paris, Presses Universitaires de France, 1989.
19. M. Trow, Policy analysis, *in*: Husén and Postlethwaite, op. cit., p. 4559-56.
20. O. Lampinen, op. cit., p. 23-24.
21. T. Husén, Issues and their background, *in*: Husén and Kogan, op. cit., p. 8.
22. Husén and Kogan, op. cit., p. 49.
23. Ibid.

24. Ibid.
25. O. Lampinen, op. cit., p. 80.
26. Carol Weiss, Congressional committees as users of analysis, *Journal of policy analysis and management* (New York), vol. 8, no. 3, 1989, pp. 411-31, p. 428.
27. Husén and Kogan, op. cit., p. 61-62.
28. J. Samoff, The reconstruction of schooling in Africa, *Comparative education review* (Chicago), vol. 37, no. 2, 1993, p. 181-222.
29. R. Ayres, *Banking on the poor*, Cambridge, MA, MIT Press, 1984.
30. G. Psacharopoulos, The planning of education: where do we stand? *Comparative education review* (Chicago), vol. 19, no. 2, 1986, p. 187-201.
31. G. Benveniste, *Mastering the politics of planning*, San Francisco, Jossey-Bass, 1990.
32. J. Forester, *Planning in the face of power*, Berkeley, CA, University of California Press, 1989.
33. See Note 8.
34. N. Machiavelli, *The prince*, New York, Penguin, 1961.
35. C.P. Snow, *The two cultures: and a second look*, London, Cambridge University Press, 1964.
36. E. Miller, Research environment in the English-speaking Caribbean, *in*: S. Shaeffer and J.A. Nkinyangi, eds., *Educational research environments in the developing world*, Ottawa, International Development Research Centre, 1983, pp. 83-112.
37. D. Rondinelli, *Development administration as policy experiment*, 2nd ed. Baltimore, Johns Hopkins Press, 1993.
38. P. Senge, *The fifth discipline: the science of the learning organization*, New York, Basic Books, 1990.
39. J. Bryson, *Strategic planning for public and nonprofit organizations*, San Francisco, Jossey-Bass, 1988.
40. J.P. Vielle, *The impact of research on educational change*, Ottawa, IDRC, 1981.
41. W. Haddad, *The dynamics of education policy-making*, Washington, DC, World Bank, 1994.
42. E. Schiefelbein and N. McGinn, Toward an integration of educational research and planning, *Bulletin of the Major Project of Education in Latin America and the Caribbean* (Santiago), vol. 28, 1992, p. 41-60.
43. F. Kemmerer, *Utilizing education and human resource sector analyses*, Paris, UNESCO-IIEP, 1994.
44. Network of Educational Innovation for Development in Africa, NEIDA; Educational Innovation Programme for Development in the Arab States, EIPDAS; Asia and Pacific Programme of Educational Innovation for Development, APEID; Caribbean Network of Educational Innovation for Development, CARNEID; Cooperation for Reinforcing the Development of Education in Europe, CORDEE.
45. B. Fuller, What school factors raise student achievement in the Third World? *Review of educational research* (Washington, DC), vol. 57, 1987, p. 255-92.
46. This research was carried out within the framework of the BRIDGES Project at Harvard University between 1985 and 1992.
47. The following are a few of many good summary works:
    D. Chapman and C. Carrier, eds., *Improving educational quality: a global perspective*, New York, Greenwood Press, 1990.
    D. Hopkins, ed., *Improving the quality of schooling: lessons from the OECD International School Improvement Project*, London, The Falmer Press, 1989.
    M. Lockheed and A. Verspoor, *Improving primary education in developing countries: a review of policy options*, Washington, DC, World Bank, 1991.

G. Psacharopolous and M. Woodhall, *Education for development: an analysis of investment choices*, New York, Oxford University Press, 1985.

United States Agency for International Development, *Lessons learned in basic education in the developing world*, Washington, DC, Bureau for Science and Technology, Office of Education, 1990.

48. This observation also holds for book-length publications summarizing research, and of course for encyclopedias.
49. SHARE was developed at the Harvard Institute for International Development under the USAID-funded ABEL project.
50. N. McGinn and A. Borden, *Framing questions, constructing answers: linking research with education policy for developing countries*, Cambridge, MA, HIID and Harvard University Press.
51. The Forum for Advancing Basic Education and Literacy is produced by the Harvard Institute for International Development within the scope of the ABEL project.
52. E. Guba and Y. Lincoln, What is the constructivist paradigm? *in:* D.S. Anderson and B.J. Biddle, eds., *Knowledge for policy: improving education through research*, London, The Falmer Press, p. 14.
53. See Note 6.
54. Husén and Kogan, op. cit., p. 78.
55. Husén, 1994, op. cit.
56. J. Coleman, Social policy research and societal decision-making, *in:* Husén and Kogan, op. cit.
57. T. Ohsako, The use of research information for educational decision-making: priority issues and suggestions proposed through UNESCO-IBE meetings and documents (1977-93), Geneva, UNESCO International Bureau of Education, mimeograph, 1994.
58. L.A. Crouch, Success in policy reform through policy dialogue, Research Triangle Park, NC, Research Triangle Institute, unpublished, 1993.
59. The language of Crouch is a bit more formal. He argues that 'there must be some space for technocracy,' and that 'human rights, peace negotiations, etc., typically, therefore, are not productive fields for a policy dialogue approach' (Crouch, op. cit., p. 4).
60. Crouch, op. cit., p. 5.
61. Ibid., p. 10. See also L.A. Crouch, E. Vegas and R. Johnson, *Policy dialogue and reform in the education sector: necessary steps and conditions*, Research Triangle Park, NC, Research Triangle Institute, Center for International Development, 1993.
62. D. Warwick, Planning as transaction, *in:* R.G. Davis, ed., *Issues and problems in the planning of education in developing countries*, Harvard University, Center for Studies in Education and Development, Cambridge, MA, 1980. See also D. Warwick, *Bitter pills*, 1987; D. Warwick, F. Reimers and N. McGinn, The implementation of educational innovations: lessons from Pakistan, *International journal of educational development* (Tarrytown, NY), vol. 12, no. 4, 1992, p. 297-307.
63. Husén and Kogan, op. cit., p. 76.
64. There is extensive literature on the varieties of participatory research. See, for example, W. Whyte, ed., *Participatory action research*, Newbury Park, CA, Sage Publications, 1991.
65. C. Weiss, The stakeholder approach to evaluation: origins and promise, *in:* A. Bryk, ed., *Stakeholder-based education*, New Directors for Programme Evaluation, no. 17, San Francisco, CA, Jossey-Bass, 1983.
66. C. Weiss, 1983, op. cit.
67. Ibid., p. 10.

68. See Note 2.
69. T.N. Postlethwaite, Research and policy-making in education: some possible links, *in:* Husén and Kogan, op. cit., p. 197.
70. B. Biddle and D. Anderson, Social research and educational change, *in:* D.S. Anderson and Bruce Biddle, eds., op. cit., p. 14.
71. Ibid.
72. M. Huberman, De la recherche à la pratique: comment atteindre des retombées 'fortes', *Revue française de pédagogie* (Paris), no. 98, 1992, p. 69-72.
73. Chapman and Mahlck, op. cit.
74. D.W. Chapman, Education data quality in the Third World: a five-country study, *International review of education* (Hamburg), vol. 37, no. 3, 1991, p. 365-80.
75. J. Bryson, op. cit.
S. McCune, *Guide to strategic planning for educators*, Alexandria, VA, Association for Supervision and Curriculum Development, 1986.
J. Pfeiffer, L. Goodstein and T. Nolan, *Shaping strategic planning*, Glenview, IL, Scott & Foresman, 1989.
76. One author lists planning as the most frequent activity of high-level executives in the business sector. G. Steiner, *Strategic planning: what every planner must know*, New York, Free Press, 1979.
77. Consultant from international contractor. Personal communication, 26 May 1994.
78. R.G. Davis, BRIDGES project report, Harvard University, July 1986, p. 15.
79. It should be noted, however, that during this period the only publication of information about the Reform was in newspapers, generally through interviews with the Minister. No systematic attempt was made to inform either the Ministry or the general public about details of the Reform as Plan or as a process. In 1991 the Minister published in English and the national language a personally-authored book describing his ideas for the Reform.
80. We appreciate the valuable assistance of Claudia Uribe who carried out a follow-up study on the impact of the repetition study in Country D. This section is based on her report.
81. This discussion of the impact of the report is based on a series of interviews and a report produced by Magdalena Rivarola for this purpose.

Information availability and its impact on educational policy-making, planning and decision-making:

implications for educational information services

Kate Wild

THE ISSUE AND ITS IMPORTANCE

[...] countries are eager to improve their education systems, but, in addition to severe resource shortages, they lack sufficient information about alternative policies and programmes.[1]

[...] lack of information leads, among other factors, to the application of erroneous education policies and makes impossible the evaluation of measures which can be taken to resolve problems in education [...].[2]

These two quotations reflect a widely-shared view within the education research and information communities that there should be a relationship between the availability of information and improvements in the effectiveness of educational systems. The purpose of this text is to explore the relationship, particularly but not exclusively as it relates to the reporting of research results, and to examine the implications for information and documentation services.

The perspective is that of the organized information service. Considerable investments have been made during the last decades in building educational libraries, documentation centres and information networks at the international, regional and national levels. Often investment has been based on the underlying assumption that it would lead to more effective educational decision-making because it would facilitate access to knowledge based on research and prior educational innovation and experience. There is still little concrete evidence that this is the case. In

these times of increased financial restraint and emphasis on establishing the value of investments, what is the capacity of the organized information community to make a more direct link between the services it can deliver and the decisions required of educational policy-makers and administrators?

The question is an important one for national educational systems, which almost always incorporate information services into their education ministries. It is also important for UNESCO's International Bureau of Education (IBE), which is a significant actor with respect to educational information within UNESCO and which includes among its objectives for the current biennium the reinforcement of national and regional capacities in information and documentation. It is important also for donor agencies which fund information activities with a view to strengthening national education systems.

The question is broader than the question of the use of research results, and information and data originating in research projects, in educational policy-making. Individual research projects may incorporate particular measures aimed at involving the policy community and attracting its attention to the results. Lessons are being learned at the level of research design and implementation. The task of the organized information service is to collect, along with available research reports, a range of other materials including policy documents, annual reports, statistical compilations, curricula, teaching and training methodologies, and news items in a systematic and comprehensive manner defined by the scope and users of its service. Its challenge is to bring the potential of these materials to the attention of those who need them, in the right form and at the right time. The understanding within the information unit of the substantive problems and work habits and cycles of its users is thus critical in establishing the kind of dialogue on education issues that can lead to effective information use. The question of the application of the results of an individual research project, or a set of such projects, is to be considered before and during the design of the project itself. The question of the use of broad collections of information must be considered after the fact, when research results are available, in the interest of expanding their audience beyond what might have been conceived by the designers or users of the original product. Part of the function of the information service is to promote the use of existing results to obviate the need for further research. In theory it provides a more cost-effective response than the commissioning of new research and opens to decision-makers and to interested segments of civil society the possibility for choice which is a necessary underpinning of democratic society.

What hampers education information services from bridging the gap between theory and the practical application of their materials to problem solving? What are the blocks to information use? These are the fundamental questions to be addressed in this report; the answers should contain implications for those investing in, designing and operating information collection, processing and dissemination structures, as well as for the policy-making, administration and research communities that are both producers of information and potential users of educational information services.

THE CASES AND THE APPROACH

This study began with a review of the literature available at the IBE Documentation Centre with a view to discovering where interesting innovations were underway with respect to the provision of information to the education policy and planning communities. Four countries and two regional systems were identified for further study. Time and resource constraints established limitations to the study. While preliminary contact was made with UNESCO bodies and with European information services, detailed follow-up was not possible. The emphasis, although not exclusive, is on the issues as they relate to developing countries.

The four countries selected – Argentina, Botswana, Jordan and Switzerland – represent very different economic and social situations, levels of development and educational information infrastructures. They are not intended to be representative of work underway in their regions. The common thread is some form of transition in the way education information is being handled.

In Argentina, the transition is from a long-established library and information programme within the Ministry of Culture and Education that had lapsed, in the last decade, into a service for the use primarily of students. Within the context of a broad education reform programme supported by a World Bank loan, the information function is being modernized, information exchange links are being re-forged with the provincial departments of education and a collaborative programme within the MERCOSUR common market (comprising Argentina, Brazil, Paraguay and Uruguay) is under development. Information is seen not only as a tool for government policy-makers but as one which can empower teachers and members of the public to participate in defining the public agenda with respect to education, thereby influencing the definition of the issues which come before the policy-makers. Information is to be placed in a broad social context which stimulates more knowledgeable public debate on education issues.

It is the research community in Botswana which is leading the push for more integration among the research, policy and information communities. The objective is to develop dialogue and increase the chances for research results to receive a hearing from policy-makers and decision-makers in the education establishment. To achieve this end, the Faculty of Education and the National Institute for Research and Documentation are jointly building an education information unit; this will draw the documentation staff into existing national and regional networks whose aim is to increase research capacities and expose research results to peer review and to review by policy-makers and administrators. There is no specialized education information service within the country; the National Institute of Research has the most experience of attempting to develop information services for use by planners and policy makers.

Jordan is in the midst of an education reform programme which has high visibility within the country. The National Centre for Education Research and Development (NCERD) is the research instrument of the reform programme. The research agenda is determined by the reform process and close working links have been established between NCERD and the Ministry. The relationship is founded on the development and use of a shared database to meet research and management needs. The results of the policy research carried out by NCERD is fed systematically to Ministry officials, but there appears to be little interest on either side in research conducted outside this system. Work on documentation within NCERD is at a very preliminary stage.

Of the four countries in the study, Switzerland is furthest advanced in the application of information technology and the development of education databases and computerized networks. It has, however, discovered that investments in this area do not necessarily lead to increased use of information by those responsible for education systems. It is therefore in a process of revising its databases and relocating them, refocusing its services and simplifying its procedures in an attempt to maximize its investments in education information.

South East Asia and Latin America are homes to the two regional networks described in the studies. The South East Asian network is the Regional Education Information Network (REIN), part of INNOTECH, an institution created by the South East Asian Ministers of Education Organization to help solve common education problems, anticipate education needs at the regional level and assist with the solution of country-specific problems. Its training and information programmes provide channels for the dissemination of its research results. But the REIN network itself has chosen to collect and process policy documents rather

than research reports as the core of its initial services and these are still at the definition stage after five years of preparatory work and meetings.

The Latin American research network REDUC (Red Latino-americana de Información y Documentación en Educación) is a much longer-established network and one of very few that has conceptualized a strategy encompassing all stages of document processing from collection to use. The foundation of the service is a database of document abstracts reporting the results of research, broadly defined. The next stage develops syntheses of the experience contained in the reports in the form of state-of-the-art or state-of-practice reports. At the top level, the abstracts along with other data and information are incorporated into policy analysis tools for use in seminars and training programmes. Over a period of twenty years REDUC has managed to maintain the processing work within a cooperative network framework in order to feed services that can have a more direct impact on policy and decision-making.

The purpose of examining the information services, systems and networks in detail in the accompanying studies was to try to identify approaches to the supply of information to policy-makers and decision-makers and factors which mitigated in favour of their success or were likely to lead to failure. The core of the studies is thus a series of questions dealing with various aspects of the management, processing and dissemination of information: 1. Funding levels and sources; 2. Management structures; 3. Management tools; 4. Networking structures; 5. Network support tools; 6. Users and user needs; 7. Services and products; 8. Types and subjects of information collected; 9. Sources of information; 10. Application of technologies; 11. Problems and obstacles.

While 'the information unit' was at the heart of the study, its emphasis was on information use; attempts were therefore made to schedule meetings with Ministry officials responsible for policy and decision-making or for the provision of advice to senior officials, and with representatives of the research community. Institutions which might provide complementary services or which acted in partnership with the main institutions under study were also contacted.

As pointed out above, the countries in which the studies took place represent very different economic, social and institutional settings. There is however some commonality in the problems that occur within the information units and in the approaches taken to resolve them.

OTHER ACTORS ON THE EDUCATIONAL INFORMATION SCENE

The results of this study, dealing as they do with a very limited number of countries and two regional networks, cannot be said to be comprehensive.

The emphasis was on generating ideas that might be worth exploration rather than on providing definitive answers. There are, nevertheless, some obvious gaps in the coverage of the study. For example, only preliminary contacts could be arranged with: the complex of information systems and services within UNESCO; the systems developed within Europe EUDISED (European Documentation and Information System for Education (Council of Europe)); EURYDICE (Education Information Network in the European Union and the EFTA/EEA Countries); and CEDEFOP (European Centre for the Development of Vocational Training)); the Education Resources Information Center (ERIC) in the United States; and some of the Research Review and Advisory Groups. Further discussion of the results of this study should involve this wider community as well as other organizations like Canada's International Development Research Centre (IDRC) which is systematically studying issues of information impact.

UNESCO and IBE

At the international level, UNESCO, with its associated regional offices and centres, including the IBE, is a major actor with respect to the provision of information on education and the support of information and documentation centres within ministries of education. The consolidation of the documentation centre within the Education Sector in 1985 was to be followed by coordination with the other decentralized services within the organization in order to facilitate, inter alia, the exchange of information with national education information centres.[3] Coordination of UNESCO information services on an organization-wide basis is now being led by UNESCO's Clearing House, with the objective of ensuring that Member States know what information is available to them, and how to access it. The UNESCO/IBE has long recognized that, while 'its particular interest is the exchange of information at the international level [...] such developments must rest on the secure foundation of quality institutions at the national level.'[4] International education information services require strong national partners in order to bring their products and services to bear on national policy-making processes. They themselves cannot be integrated into national education systems, but their effectiveness must be judged to some extent on their capacity to raise issues and fill information gaps at the national level that help resolve national problems. They rely on close links and dialogue with actors at the national level. Lack of effective systems at the national level therefore impacts on the effectiveness of international education information services. The provision of documents and publications, training and the

development of standards for processing information have been the main tools used by the international community to strengthen national services. The extent of the programmes has fluctuated with changing international priorities and resource limitations. This study is an indication that the IBE is interested in examining the role that international organizations can play, not only with respect to the supply of information, where most emphasis has been placed in the past, but also with respect to information use. New tools and new relationships will need to be explored. The UNESCO Clearing House and its General Information Programme may both be sources of useful ideas.

Educational information in Europe

Three information systems support the development of education programmes within the European region. The European Union organizations EURYDICE and CEDEFOP cover, respectively, education and vocational training. The EURYDICE's main resources are a bibliographic database describing EEC (EU) documents and materials selected by its national centres, and a textual database on the structure of education systems. From these it prepares reports and information files for the use of political decision-makers. It aims also to impact on public opinion. The specific tools which it uses to address policy needs would be worth further examination. The CEDEFOP also manages a bibliographic database and uses it to draw information needed to produce policy studies. It works in a more explicitly political environment, given its governance by a board that includes representatives of workers, employers and governments and given the close connection between employment and vocational training issues. How EURYDICE and CEDEFOP react to the increased membership of the EU and the demands of less-developed European States for technical support and advice will be worth following. Here we have systems that have had the time and the resources to establish themselves within a constituency of 'information rich' countries prior to meeting extensive demands for technical assistance.

A third network, EUDISED, the education documentation and information network of the Council of Europe, covers ongoing and completed research in its thirty-seven member states. It produces a bibliographic database and regular printed compilations of references, but does not appear to have developed tools specifically to address the policy community.

ERIC: the Education Resources Information Center

The ERIC programme was started in 1966 by the United States Office for Education to keep track of the many research projects it was funding.

Today it is in many respects an international education information service, providing a range of bibliographic services and 'fulltext' in machine-readable and printed form. Documents recorded in ERIC databases are available in printed form or on microfiche from 950 ERIC Information Providers, 150 of which are located outside the United States. Worldwide access is likely to increase as ERIC extends its services on Internet. ERIC is willing to enter into partnerships with other organizations to make their information available on Internet as long as English-language indexes have been developed. Any new approaches to providing education information at the international level need to take account of what is provided by ERIC, complement it where possible and take advantage of its existing dissemination channels.

The Research Review and Advisory Groups (RRAGs)

The RRAGs are becoming an increasingly global mechanism for keeping researchers and research institutions in touch with each other, providing fora at national, regional and international levels for the exchange of information and ideas, for facilitating open debate on policy initiatives and issues of wide concern and for attempting to link the research and policy worlds. The RRAGs exist in the North (NORRAG), Southern and Eastern Africa (ERNESA), West and Central Africa (ERNWACA), South East Asia (SEARRAG) and Latin America (REDUC). The REDUC for many years, and ERNESA more recently, are putting emphasis on the control and abstracting of research reports as a first step towards the provision of more policy-oriented information services. To the extent that these networks link policy makers and researchers in debate on education research results and concrete education issues, they provide an extensive network of links for global information exchange. The Southern Education Research Initiative (SERI) appears to be still defining its role in this complex, but may be able eventually to act as the inter-regional link. The RRAGs, which are increasingly bringing the information community into contact with policy and research, may add the critical personal dimension and discussion space needed to capitalize on the flow of information from formal systems.

POLICY AUDIENCES

In examining the question of the impact of information on policy, planning and decision-making, the audience is normally assumed to be at senior levels within government. This is certainly an important audience. However, the definition of the broad outlines of major policy reform may

involve other actors, including key non-governmental organizations (NGOs). Also, the insertion of education issues into the national policy agenda is certainly influenced by, if not determined by, public opinion. Policy development is increasingly seen as a joint enterprise between governments and civil society.

Some of the institutions interviewed for this report were interested in attracting media attention to education issues, with the view to influencing policy. Others were interested in addressing broad sectors of civil society, including parents and teachers, to encourage them to engage in public debate on education issues. Education is a long-term enterprise and these audiences, outside of the direct line of command with respect to education decision-making, may be equally influential with respect to the long-term agenda.

It is therefore not only governments which should be policy targets for the providers of education information, but also the press and the media, key NGOs, workers' and employers' organizations, professional associations and civil society in general. The concept of education information service for policy use needs to be developed within this broader framework.

THE FINDINGS

Discussion with education information and documentation staff was guided by a questionnaire designed to elicit not only objective information but also more subjective assessment of the role of the centre within its host organization and within the local community. Not all questions were relevant in all situations. The findings reflect discussions with institutions concerned with education administration and research as well as information. The following summary highlights main findings.

Funding

The purpose of asking questions about funding was not primarily to determine exact levels (which obviously varied widely depending on the nature of the organization to which the information unit belonged, and its own mandate). The purpose was rather to discover the extent to which managers of information units contributed to the preparation of budget proposals and the subsequent management of resources and thus had effective control over the units they managed.

In the smaller centres – Botswana, Jordan (both NCERD and the Ministry Library) and REIN – involvement was very limited in both budget preparation and in resource management.

In REDUC, whose activities are largely project-funded, project identification and negotiation is mainly the task of the director of CIDE (Centro de Investigación y Desarollo de la Educación); the REDUC coordinator also plays a role, and is responsible for managing resources once they have been secured.

In the Argentine Ministry of Education, the Director of the Information Centre was responsible for developing the proposals which secured both World Bank funding and Ministry resources and was responsible for all aspects of resource management.

Budget levels had not been established for the Swiss IDES at the time of the interviews; they would be based on proposals from the centre and be managed by its director.

Switzerland provided the only example of information professionals being charged with budget preparation and management.

Donor funding has been an important component of the budgets of the education information programmes of REDUC, REIN, NIR and ERNESA and the Argentine Ministry. In the case of REDUC, this has stimulated creative approaches to information service. In the case of NIR, the termination of donor funding seems to have been accompanied by a reduction in activity; donor funding through ERNESA may reverse this trend. In the case of REIN, donor inputs have been for specific, limited activities and do not appear to have had a clear programme focus. The results of donor inputs could usefully be shared more among donors and with recipient organizations to stimulate thinking about priority investments in the collection, processing, and, in particular, the use of education information.

Management

Management questions focused on the availability and use of management tools (clear statements of objectives and indicators to monitor system throughput, service levels, and user satisfaction) and on evaluation. The absence of management tools, or of their use, can limit the credibility of the information unit as an effective partner in the institutional enterprise and its capacity to justify its programme and resources.

Statements of objectives appear to be developed within the context of projects but not for the information services themselves. While most of the centres had developed basic tools to monitor inputs into the system and numbers of users, these did not appear to be used to signal potential problems. The kind of information kept about users was not in most cases sufficient for the identification of particular target groups.

While most of the centres were using computers to build databases and retrieve information from them, they were not yet using them to produce management information. Manual records, when available, were not always kept up-to-date and aggregated, so they had limited value from a management perspective.

In both Argentina and Switzerland, where new structures were being created, the intention existed to build monitoring tools. The Swiss IDES (Information/documentation/education/Suisse) was the only centre that appeared to have given serious thought to defining the scope of the information it would collect. Defining the scope of collections provides a key tool both for targeting user groups and for assessing user satisfaction as well as for keeping in balance resources needed for production and service functions.

Only in REIN were evaluations made available during the course of discussion. Their focus was on technical aspects rather than on information use.

More general evaluations or assessments exist for the three centres where IDRC projects have been carried out (Botswana, REIN and REDUC) but they did not appear to have guided post-project activities locally. An evaluation had been carried out prior to the transition in Switzerland from CESDOC (Centre suisse de documentation en matière d'enseignement et d'éducation) to IDES but it was not possible to obtain a copy.

Neither at the level of the individual information unit with respect to management information, nor at the level of senior management and the donor community with respect to evaluation does it appear that bodies of knowledge have developed to relate information programmes to specific objectives, in particular the satisfaction of the needs of clearly defined groups of users. Sharing evaluation information could improve the design of future education information programmes.

Staffing and management structures

Professional information staff were responsible for management and technical work in Botswana, the Ministry Library in Jordan, REIN and the Swiss IDES. In Argentina, the director is a sociologist, and in REDUC the coordinator is an education specialist. The person responsible for developing the future documentation function within NCERD in Jordan is a publications specialist.

Staff numbers ranged from one in REIN to 52 in the Argentine Ministry information centre.

Education specialists play key roles in the design and production of information services in REDUC and IDES.

The structure of the staff was flat in most cases because of the small size of the units concerned; in Argentina, the only case where the staff was substantial in number, five coordinators had been appointed for the library, the documentation centre, communications, technical issues and management. Only the coordinators for the library and the documentation centre are trained librarians. The communications coordinator, a sociologist, is responsible for selection of materials and a special post has been created for a library graduate to monitor the quality of products across the board.

Questions were asked about reporting procedures and participation in joint management meetings in order to assess the involvement of the information unit in the overall planning and management activities of the host organization. The extent to which substantive and management issues are shared through such processes affects the capacity of the information unit to respond to the needs of the organization and its clients.

In the smaller centres, senior management did not appear to expect systematic reporting from the documentation unit or its involvement in issues of general interest to the organization. This was even true in Botswana where the documentation unit had no close links with the research groups it was supposed to serve. Close collaboration between the documentation centre and the education specialist who coordinates ERNESA is, however, considered critical to the success of the new education documentation unit within NIR.

In REDUC and the Argentine Ministry, information centre management participates routinely in meetings of senior staff and reporting is on a regular basis.

In REIN, senior INNOTECH staff participate in meetings of the network but do not appear to monitor closely the activities of its coordinating centre.

Questions were also raised about the distinctions between library, documentation and information functions which may be less relevant to users than to information professionals.

In REDUC, IDES and NIR no distinction has been maintained between library and documentation work. In INNOTECH, REIN has developed separately from the resource centre or library but consolidation is now under consideration. In Argentina, separate library and documentation functions are being maintained within the framework of the information centre; plans are to merge information-processing functions but maintain separate service units. In Jordan there was no documentation function as

such in NCERD; in the Ministry the library carries out some documentation functions, for example compilations of legislation.

It may be attractive, in terms of independence and image, to locate new documentation and information programmes away from more traditional libraries. But many of the functions and required skills are similar and resources are often not available on a sustained basis for separate units. A more useful approach may be to define projects which focus a cross-section of all information skills on the definition of key user groups and the identification of the content of selected information materials that match their needs.

Networking structures and tools

No information centre can be totally independent and self-reliant: it cannot have totally comprehensive collections or provide all services. Links with other organizations, and formal or less formal networking arrangements, are critical to capacities to serve clients. Networking was not, therefore, an issue of relevance only to the two network coordinating centres that formed part of this study, but also to the other organizations.

In Argentina in particular, because of the federal/provincial structure of government and the division of responsibilities with respect to education, it is critical to maintain a flow of education information within the country through networking arrangements. The same is true for the MERCOSUR region. In Botswana, networking around issues has been an essential element of the research programme of the National Institute for Research and Documentation and could provide an important dissemination tool and source of information for its documentation centre. The difficulty in establishing a national network to feed the results of development research to NIR limited the success of the IDRC-funded project in building a database for development planners. One of the main benefits of cooperation between the Institute and ERNESA will be to draw the documentation centre into regional and national education networks and thus reinforce the supply of information. In Switzerland, the IDES strategy is to link the cantonal education services within an information exchange network once it has proved the value of its own services to these institutions. IDES is guided by the belief that institutions will only participate in networks if it is clear they will receive useful services in return for whatever they contribute to the coordinating centre and the overall management of the network. This is a basic principle, but one which is sometimes forgotten.

Networking is an important issue for all information centres, but it is critical for the two networks under study. Their survival is based on their

capacity to collectively provide their participating centres with contacts, services and products of sufficient value to offset the costs of membership in the network.

The REDUC has a longer history than REIN but also appears to have been more successful in generating a sense of mutual enterprise within the network. The result is a collective memory on education research in the region which dates back some twenty years and represents a unique information resource. If the resource does not exist, questions about how to apply it in any environment, policy-making or otherwise, do not arise. A number of factors have contributed to the continuity and success of REDUC:

1. Flexibility in the identification of participating institutions. There may be several in each country, but participation is based on mutual interest rather than on any official status. The aim is to identify institutions which, through networking, can identify common agendas and achieve shared goals;
2. The involvement of researchers, documentalists and individuals concerned with policy in network meetings;
3. An ability to adapt to the agendas of donor agencies with new products while at the same time nurturing the bibliographic base of the network;
4. Leadership and commitment from the coordinating centre.

It is a fundamental fact that the coordinating centre, CIDE, is committed to education change. The network, and the information it provides, is a tool to that end and must be measured in those terms. Thus, CIDE and its network partners are constantly striving to make the link between information and better decisions on education issues at policy and practitioner levels. The need to generate resources reinforces this tendency since donors are more interested in improvements in education systems than in the establishment of information services *per se*.

The REIN membership is made up of Ministries of Education in six South East Asian countries. It has an ambitious programme encompassing policy statements, statistical data, development projects, education experts, bibliographic data and a referral service. Work is currently underway on databases of policy statements (full-text) and development projects. Contributions are received from participating institutions but network-wide products have not yet been developed. REIN has been in existence since 1989; the coordinating centre has limited staff resources, less than one full-time person, and its programme is therefore ambitious. Closer coordination between REIN and the skills and collections

available in INNOTECH's Resource Centre should increase its technical capacity, product range and links within member countries.

Both REIN and REDUC hold regular meetings of network members. In REDUC's case, these meetings often include agenda items on issues of substance and they involve both the manager and the documentalist from the participating centres. Both REIN and REDUC can provide financial incentive to participating centres to process information for the network.

Both networks have provided training to their members in the preparation of inputs to the regional databases and the use of micro CDS/ISIS. REDUC has recently extended its training programme by providing training to documentalists and researchers within ERNESA. Micro CDS/ISIS is in use in REIN and REDUC as well as in the documentation centre of Botswana's National Institute of Research and the Argentine Ministry of Education library and documentation centre. It is under consideration for use by the Jordanian Ministry. The IBE thesaurus is used by REDUC centres, REIN (along with the ERIC Thesaurus) and the Argentine Ministry. IDES in Switzerland uses the EUDISED and CEDEFOP thesauri. NIR in Botswana uses the Macrothesaurus.

The only reservations about micro CDS/ISIS and the IBE thesaurus were expressed in Argentina where it was felt that the former might not be robust enough to support the kind of wide-area network envisaged and that the latter was not flexible enough to represent adequately the semantic relations among terms.

Overall there is a fair degree of homogeneity in the information exchange standards and tools in use which could eventually facilitate inter-regional information exchange, as long as the tools keep pace with the demands of network members for new capabilities. User institutions recognize the contribution made by the international community, and in particular UNESCO and IBE, to the development of tools that facilitate information exchange within education documentation networks.

Users

REIN conducted a needs assessment prior to the preparation of the original project document. This identified the priority within ministries in the region for a kind of ready reference service on education structures and issues. REDUC has conducted interviews to try to determine the information use patterns of education policy makers. No other formal surveys of users and their needs were identified in the course of this study.

IDES is specifically directing its services to policy makers at the cantonal level and to the conferences that coordinate inter-cantonal

education issues. Its assessment of the user community will be guided by the experience of its 'home' organization in working within these conferences; thus communication between IDES and CDIP (Conférence suisse des directeurs cantonaux de l'instruction publique) technical staff will be critical to keeping the information services on target. Since the services are new it is too early to assess their impact.

REDUC has developed a number of interactive models and simulation games drawing on REDUC abstracts or key documents and data on education issues, for use in policy-analysis training programmes and seminars. It perceives policy analysts as a key user group but REDUC abstracts and documents are also used in teaching programmes within the Latin American region, for example in the masters and doctoral programmes at the Catholic University in Cordoba (Argentina), in the expectation that this will influence the information use habits of future researchers and policy-makers. REDUC is also experimenting with dialogue with teachers and information feedback centring on their problems.

REIN, through its database on policy documents, will aim to attract users from the policy-making communities in SEAMEO member States and has provided comparative information on education systems to help the Philippine Ministry identify experiences within the region meriting further study. It has not yet developed a sufficient product base to enable an assessment of use.

NIR in Botswana originally developed its database for the use of development planners, but there appears to have been little follow-up of this original target group.

In the library of the Ministry of Argentina – the only centre which could quantify the use of its services by category of user – 69% of use was by students, with the remainder by teachers, administrators and researchers. While the figures for students might be particularly high because of the amount of space available for readers, the pattern would seem to be not far from the norm with respect to the use of the physical resources and facilities of the libraries and documentation centres visited. This of course represents only a small part of total use of products distributed.

The fact remains that there is very little evidence of use of research results or other sources of information by education policy-makers; the issue is being addressed by REDUC through a new series of interactive products, by IDES through synthetic reports on education issues and by ERNESA and NIR in Botswana through networking and the development of a bibliographic database of research reports. There will clearly be a

need for closer monitoring to assess patterns of use by particular target groups and to guide the redirection of services when appropriate. But it must also be recognized that policy-makers are not the only users of education information and that the same information sources may be used to derive products for different groups as demonstrated by the exploitation of REDUC's abstract base for policy purposes and for teachers.

User needs

The ministry of education staff who were available for discussions on information issues should not be taken as representative of all their colleagues, any more than the information units covered by this study can be said to be universally representative.

The discussions did not reveal a general bias in favour of the results of research work. Users contacted expressed a definite preference for factual information and data. One consistently expressed need called for information which could help the education system provide the labour market with the kind of skills that would increase the international competitivity of the local economy.

Data and factual information defining the local and national contexts in which education decisions had to be taken, including information about the legislative and regulatory framework, was considered a priority by many.

Information about structures and systems elsewhere was considered to be useful but there was some scepticism about written descriptions and reports which may tend to present national situations in a favourable light and omit important contextual information. This was considered to be the case by some for the regular reports provided to the International Conference on Education on the Organización de Estados Ibero-americanos. Information about how other countries organize their education systems was seen as a useful guide for identifying experiences meriting closer examination, rather than as a substitute for such examination.

Information needs of policy-makers are driven by the decisions they are required to take, the issues they are required to address, time factors and information availability. The format in which information is delivered is not their only concern. The fact that they do not identify research results as priority may say as much about what the information centre knows about the problems they face as it does about their actual information needs. For example, research reports may contain data that would be useful if highlighted by the information centre, but not if the policy maker

needs to discover its existence for him or herself. Policy makers do not want fragmented information; they want information from different sources packaged around the issues they deal with. It is in CIDE, where staff are involved with education research and the top management is well connected with the policy establishment – in Chile, in the region and internationally – that most concerted efforts are being made to explore ways in which policy-makers may be persuaded to incorporate research results and other relevant information into their thinking.

Types and subjects of information collected

Only in IDES in Switzerland was there explicit acknowledgement of the need to define material to be collected, in the interest of clarifying what users might expect from the information centre and in the interest of balancing resources between processing and service tasks. If there is little control over the mass of information coming into the centre, it is easy for an increasing proportion of staff resources to be siphoned into processing rather than service work.

REDUC and REIN have implicit policies determined by the information produced within their participating centres, but no means of assessing how closely their collections, whether research materials or policy documents, correspond to comprehensive coverage. It is possible that key material could be absent from both systems without it being realized.

Broadly speaking, REDUC collects research reports, with research defined to include descriptive studies, state-of-the-art reports, conference papers, and related materials. REIN incorporates policy documents from ministries in the region, and project reports, although it intends to expand coverage to include statistics and expertise; the coverage of the Resource Centre is broader; REIN does not give priority to the supply of bibliographic information or the collection of research reports. The Argentine Ministry will focus on the subject of education rather than on subject materials likely to be of general interest to students and teachers as it has in the past. The ERNESA/NIR centre in Botswana will collect 'grey literature' on education which will mostly be made up of research reports from network participants. The NCERD in Jordan presently acquires information requested by its staff. In Switzerland the IDES focus will be on education policy materials of current interest.

Defining the scope of collections is not a purely formal exercise; it helps users decide whether a service should meet their needs and it enables management to set priorities in terms of expenditures for purchase of materials and use of scarce staff resources for processing. It can also support marketing efforts and help identify target users.

Services and products

Most of the units represented in the study are at the design stage with respect to the development of services and products. This is true of Argentina, where long-dormant services are being revived and refocused for wide distribution; of Botswana, where the education documentation centre is being created; of Switzerland, where reorganization is still underway; and of REIN, which has produced services for Philippine users, but not yet for the network members as such.

The most original thinking on products is underway in REDUC. Starting from a base of document abstracts, which have been widely distributed in printed and machine-readable form, along with the fulltext of documents on microfiche, a series of products has been developed which attempts to stimulate demand within the communities of education policy and practice and demonstrate how that demand can be met. Products include: simulation models and policy analysis tools which draw on document abstracts along with key texts and data; hypertext search techniques for navigating through sets of abstracts and the full text of certain documents which can be provided on diskette; state-of-the-art reviews based on reports included in the abstract base; and bibliographic materials in answer to specific queries.

ERNESA and NIR in Botswana are beginning to build a database of education research materials similar to the REDUC abstract base, and insisting that the people responsible for processing information understand that its purpose is for development decision-making. Abstracts must reflect a good understanding of education issues.

The Swiss IDES will add to its bibliographic services a series of synthetic reports providing factual information on topical education issues. These are designed for the policy community and prepared by the education specialist on the documentation centre staff.

REIN intends to develop comparative profiles of the education systems in its member states based on the policy documents included in its database and other materials collected inter alia by the INNOTECH Resource Centre. A sample was produced for the Philippine Ministry officials and was considered useful.

The Ministry information centre in Argentina has revived two services: a publication containing the tables of contents of journals and a list of new acquisitions, both of which will receive very wide distribution to administrators, teachers, libraries and research centres. Provincial education documentation centres will receive sufficient copies of all the Ministry's information publications to distribute within their own provincial networks. In addition to information services as such, the Ministry

information centre intends to develop a series of cultural and 'information' events to increase public awareness of education issues and facilitate access by students and teachers to new education technologies and products.

Charging for products and services is not a widespread practice, although it is under consideration in IDES. Apart from charging for photocopies which generates useful income in Argentina because of the large user base of the library, REDUC is the only organization that has established a charging policy which applies to its database and microfiche collections. The success of the policy is limited by a number of factors: lack of information marketing infrastructures in the region or marketing skills in CIDE; lack of marketing policies for information products generated with donor funding; limited international interest because of the language of the base; and CIDE's own tendency to provide the same materials at much below the stated price to interested user organizations. If there is a market for the kind of education information products under development in the organizations surveyed, it has not yet been fully explored or tapped. The possibility of significant income being generated by information products in the education area is still distant.

Sources of information

Most of the units could not specify the sources of information from which their materials were drawn in any precise way. IDES was an exception, as the cantonal governments are vital partners and the Swiss universities important. In the case of REIN, national education ministries are most important; but other ministries and regional organizations could also produce relevant materials. In the case of REDUC, the net is wide: it includes network members, but also the organizations with which they have contacts, and regional and global organizations which are in contact with CIDE. In the case of ERNESA, it will include mainly network members. The Ministry in Argentina was the one organization surveyed which purchases materials extensively from publishers.

Documents and publications produced by the host organization were important components of collections in most cases; in the case of the Ministry in Argentina they form one of the important services that the information centre can provide to provincial documentation centres.

The problem of sources of information poses itself differently when the attempt is to identify and collect 'grey literature' than when conventionally published materials make up the bulk of the collections. In the former case, more effort is required to identify and nurture relations with source institutions and to develop networking arrangements; this has a

payoff in bringing life to information services since sources of such literature are often important users who have a stake in seeing their materials made widely available and who can contribute expertise to the definition of appropriate information services.

Many organizations worldwide are restricting their free supply of documents; a number of organizations pointed out that it is increasingly difficult to obtain documents from international organizations. UNESCO's International Institute of Education Planning (IIEP) was the only organization identified which is systematically addressing this problem by increasing the free supply of its publications under an externally financed grant.

In the climate of restricted budgets for acquiring and mailing materials, exchange agreements inside or outside formal networking arrangements take on increasing importance. In this context, a clear definition of the scope of the service, and the collections needed to support it, is essential to the identification of key sources of information and to building mutually-reinforcing relationships with them.

Application of technologies

NCERD and the Ministry of Education in Jordan were the only two organizations that were not using computerized systems for any aspect of documentation work. Both recognized that computerization was necessary and the Ministry library identified micro CDS/ISIS as the most appropriate tool because of its wide use in the country.

IDES in Switzerland was the only organization that had initiated computerization but was not using UNESCO's micro CDS/ISIS and IBM-compatible PCs.

Most organizations were moving into local-area networking environments; in Argentina, a wide-area network will link the federal and provincial education documentation centres. CIDE and a number of REDUC centres are using Internet, primarily for electronic mail rather than for information access or exchange.

REDUC and INNOTECH(REIN) have expanded the capacities of micro CDS/ISIS: REDUC in the direction of more user-friendly and powerful search techniques, and REIN in the direction of capacity to handle full-text.

REDUC has also developed modelling technologies with built-in information access.

Microfiche is still an important document delivery technology for REDUC. While it is exploring the production of a CD/ROM containing

both abstracts and the texts of current documents. CD will not replace the need for microfiche until all centres are equipped with CD/ROM readers.

The provision of information technology (computers and the micro CDS/ISIS software) to participating centres has been a feature of both the REIN and REDUC networks. REIN has also experimented with teleconferencing.

Within the Ministry in Argentina, a conference centre will be established with video and teleconferencing capabilities as part of the outreach programme of the information centre.

The most prevalent technology within the case study organizations is micro CDS/ISIS, developed and made freely available by UNESCO. Micro CDS/ISIS was originally intended for relatively small-scale users with access to personal computers. As the power of these has increased, and the software has developed, use has expanded rapidly. UNESCO has not created a strong support unit for micro CDS/ISIS, which has led the Argentine Ministry of Education to question whether investing in micro CDS/ISIS for its growth programme does not involve too high a risk. The other organizations surveyed here probably operate such limited micro CDS/ISIS applications that the cost, in terms of training and documentation, of converting to another system would be manageable. However, micro CDS/ISIS is a very widely-used system in the developing world and has to be counted as a major UNESCO contribution to documentation programmes in its Member States. Strengthening the support unit would increase confidence in UNESCO's long-term interest in building national documentation capacities in all its fields of interest, including education.

Innovative technological developments have been undertaken by REDUC in its attempts to adapt bibliographic data and abstracts to policy use through enhanced search capabilities and simulation modelling. Plans in Argentina to incorporate a multi-media centre within the information centre will introduce students and teachers to new technologies and information services and this represents an important element of the overall programme to sensitize the public to education issues and to the new capabilities offered by technology. High-end technologies based on telecommunications (use of Internet and related communication systems and teleconferencing) are still only in limited use, and wide-scale application of CD/ROM appears to be waiting for the installation of CD/ROM readers on a wider institutional base.

Within the case study institutions and their network partners there is still a wide discrepancy in available technologies and capacities to exploit them.

Marketing and promotion

'Marketing' in this context designates attempts to sell information products, and 'promotion' attempts to encourage their use. While many of the centres covered in this study put prices on their printed and machine-readable products, these often receive such wide free distribution that there is not much of a market left for sales; in any event, sales of such publications are handled normally through the organization's sales units and no special marketing efforts are undertaken for 'information' publications *per se*. The only real marketing opportunities identified in the course of this study were the database and microfiche collection of REDUC, priced at US$ 3500 and US$ 3900, respectively. REDUC could not immediately identify how many copies had been sold, which suggests that sales are not significant. The REDUC management recognizes that it does not have much marketing expertise, but the difficulties are compounded by the weak information marketing infrastructure in the region, the language of the database and documents, and the fact that within the Network of Networks project funded by IDRC, participants cannot agree on a common pricing and marketing policy.

The CIDE has been successful at marketing REDUC concepts, otherwise there would be no external funding for the network. It has therefore been able to convince the education establishment in donor agencies of the value of its services and products.

A number of interesting ideas are being explored with respect to promotion:

1. The policy analysis seminars for which REDUC provides inputs and which it jointly organizes with other institutions in the region;
2. The dialogue with teachers, also initiated by REDUC;
3. The proactive preparation of information materials for seminars and workshops on education issues;
4. Proposals to include information items on seminar agendas;
5. Participation in subject-related networks where education information may usefully supplement information in other areas;
6. The organization of conferences and seminars when particularly interesting new material is received or to reveal trends identified in state-of-the-art or synthesis reports;
7. The preparation of non-technical summaries of issues for use by the media as well as by policy-makers and practitioners.

All these efforts presuppose closer links between the information and education specialists and a better understanding by the former of issues confronting the latter. They require the information unit to take the initiative in offering contributions to events organized by others.

An overview of the findings

With notable exceptions, the cases show that education information is still often isolated from institutional management and user communities. At the same time, information units do not exploit opportunities to define objectives or user groups and demonstrate how information needs can be met. Their management is often weak, both at the level of the unit and at the level of the host organization. Until they learn to target their resources more systematically, it will be difficult for them to break out of their isolation, demonstrate their value to their home institutions and relate their services to education issues and the communities dealing with them. Both levels of management have a role to play. Where efforts are being made to integrate information programmes into overall institutional management, and the information community with education planning and research, there appeared to be more awareness of the need to address policy audiences.

None of the cases studied could match REDUC's twenty-year history of sustained commitment to the objective of using information to change education systems. Three components are important and rare: belief in the link between information availability and education change; clear management recognition that an information base is a prerequisite to the application of information for decision-making purposes; and recognition of the role of the information specialist in the endeavour. The long-term commitment of CIDE management has been the most important element in enabling REDUC to reach the point where issues of policy application could be seriously considered. It may be difficult to quantify, but it is also difficult to deny the connection between sustained management commitment and the capacity of the information service to become an instrument of education change.

Policy-makers and decision-makers were considered the most important target audience by all the case study institutions, with the possible exception of the information centre in Argentina which gave high importance to teachers and school administrators and the broader public, although by no means to the exclusion of decision-makers within the federal and provincial governments. Government officials, if the results of this study are a guide, prefer factual information to research results. Research reports certainly may contain useful factual information and it

is the responsibility of the information centre to package that, along with materials from other sources if necessary, around issues of concern to the decision-maker. A number of attempts in this direction have been identified: databases for use in policy analysis, for example, and synthetic reports and compilations of information describing education systems.

AN APPROACH TO INFORMATION USE PROBLEMS

Factors which affect information use are related not only to the information unit but also to the nature of the problem being addressed, the institution and staff carrying responsibility for resolving the problem and the availability of relevant information.

The nature of the problem

The relevance of information, and its appropriate form, is determined, first and foremost, by the nature of the problem under consideration or the decision to be taken.

At one level, ideology or fundamental political orientation determine the general direction in which solutions will be sought, and qualitative information, no matter how closely related to the subject under consideration, may not have much impact. Broad choices with respect to the generation of resources and their allocation among different sectors seem to fall into this category.

At a much more concrete level, some issues such as school construction and school location will more likely be settled by the application of data to agreed standards rather than by the application of research results. It may be that interest in research results and descriptions of experiences and innovation develops only once a certain level of availability of data has been attained and decision-makers feel comfortable that the basic parameters of the problem are clear.

It is at times of reform and the establishment or revision of education standards that qualitative or research information has the most impact. When a broad rethinking of the education system is underway, or when a need is perceived to review practices in a given area and update approaches and standards, research and the results of experiences and innovations elsewhere may be most useful. Once the main lines of the reform programme have been established there may again be less interest in further exploration of the ideas and experiences of others.

If this assumption that some issues are more amenable to information inputs than others is correct, information centres must take responsibility

for discriminating among issues and developing their collections and services accordingly. There is a need in the world for broad-based comprehensive information services for general research, historical and archival purposes. But such services by themselves are not likely to also be capable of developing targeted products for particular groups of decision-makers in education.

The institution responsible for addressing the problem

All institutions develop their own cultures which determine the way staff members carry out their work. Ministries of education have similar characteristics the world over, and they share many of the features of any government bureaucracy. But each will also have its own particularities. Among those that impact on information use are: the kind of advisory staff available to the minister and his senior officials; the nature of the planning process, whether essentially technique-based or issue-based; the existence or not of an information facility; the extent to which staff are well-connected to the education scene, nationally and internationally; and the time pressures under which decisions are normally required to be taken.

The information unit, whether it is inside or outside the ministry, will not be able to change most of these factors; understanding them and adapting information products to reflect them will increase the chances of information use.

Availability of information

Users need to be able to predict with a high degree of accuracy what information will be available, with what degree of precision and detail and in what time frame. It is trite to say that the right information is of no value if it arrives too late or if it is buried within so much other material that users lose patience before discovering it. It is the responsibility of the information unit to define and make known what information it can deliver from its own sources or through network contacts, and in what form and timeframe it will deliver that information. The user can then make an educated decision as to whether the information centre can help solve his/her problem or not. In the absence of a clear understanding of the capabilities of the service, the user is more likely to approach his own contacts and information sources and to bypass the formal information structure.

Mutual understanding

It is unlikely that the information unit will be able to understand in sufficient detail the issues, and the institutions dealing with them, if it has no

education expertise on its staff. It is equally unlikely that users will understand what can be obtained from the information centre unless its collections and products can be clearly defined in terms of the issues which they are required to address. Bridges must be built between the information and the education worlds for the former to have impact on the latter.

MAKING THE LINK

The measures needed to integrate information units into substantive work on education issues are both structural and managerial and concern both the information unit itself and the institution in which it is housed.

More integrated structures

If the managers and staff of information services are outside the 'discussion space' within their host organization, it is unlikely that they will develop a sufficiently precise notion of the substantive problems facing their colleagues, or of their methods of work, to be able to design and attract attention to appropriate information products.

In REDUC, which is the most successful of the cases studied here in terms of external support, user interest and continuity, concerted efforts have been made to draw the information and documentation staff into dialogue with education specialists, and structures have been established at the level of the network and of the coordinating centre to facilitate regular contacts and sharing of ideas. The institutional setting for REDUC is research rather than policy or administration, but the linkages are equally necessary in an administrative environment.

A number of possible approaches to ensuring that the information unit is integrated into debate on priorities and issues are outlined below. The most critical may be the staffing of the information unit and the selection of its manager. For the latter post, the ideal is probably a combination of education and information expertise. In any event, education expertise should be available within the information unit in order to ensure that products correspond to the agendas and terminology of education specialists. Whatever the technical requirements, the manager must also have sufficient stature to participate in policy and planning sessions within the host organization, as he or she will be the main bridge between the information programme and the substantive units and will be responsible for interpreting information needs and ensuring that they can be met. Formal

studies of users' needs have their place but they cannot substitute for ongoing dialogue as a means of identifying and responding to information needs.

Research and analysis units

Research, policy analysis and information gathering and processing are closely allied activities. Often research units contain, or are closely linked to, a data or statistical processing capability. It is much rarer to see them linked to library or documentation units which can provide a qualitative as well as a quantitative basis for research and policy work. Ministries of education which establish research units could consider either including documentation functions within the unit or linking the management structures within a single team. Whatever the mechanism, the aim is to ensure dialogue between the researchers and the analysts on one hand and those with access to internal and external information sources on the other.

Information brokers

Information brokers are people who stay closely in touch with developments in their own fields and communicate what is relevant to their colleagues. Within a ministry of education, brokers attuned internally to the policy priorities and externally to research trends and information sources could provide a link between the policy, research and information communities. Personal networks, participation in meetings and seminars and systematic review of professional literature are some of the channels that increase the brokers' access to information. The REDUC database and other information products have the potential to support the information broker through the provision of information about individual research projects and research trends. The introduction of REDUC in policy analysis seminars could stimulate the creation of a pool of information brokers with special knowledge of the REDUC resource, particularly if the seminars include sessions specifically focused on the information broker function and its capacity to feed information and experience into decision-making.

But REDUC is only one bibliographic database and set of services; the methodologies it has applied could be used with other databases: bibliographic, fulltext and statistical. The REDUC experience in this context needs to be widely disseminated so that other organizations can explore its potential for adaptation to other information resources.

Similarly, consideration could be given to identifying other potential candidates for the information broker role and settings in which information could be exploited to help them achieve their ends more effectively. Public information officers, for example, may be suitable candidates because of their connections internally and externally and their interest in achieving changes in public opinion through information dissemination.

The information broker concept is not a new one; it has been recognized as an element of scientific research and information-seeking patterns for many years. The equation of policy analyst with information broker is an interesting development which will be tracked in the context of an IDRC study on the impact of information in a number of different project settings. The implementation of the concept could be different in different administrative environments; it might be worthwhile, therefore, to identify opportunities, including within the context of various RRAG meetings, to explore a variety of ways in which it could be introduced in seminars and training programmes for education ministry officials.

Organizational management and policy bodies

Information management has to be seen as an integral part of the overall management of the organization, and information managers must be partners in discussion of substantive and management issues if they are expected to develop products and services that can impact on the real work of the organization. The provision of relevant information relies on a chain of prior acts and channels of communication; the information manager must ensure that these correspond to the needs of the organization, and he or she must be aware not only of issues of current importance but also those that are likely to emerge in the future. It is impossible to gain this knowledge if information managers do not have access within their organizations to discussions of substantive and programme issues.

Libraries, information and documentation centres

If an education ministry plans to create an information service specifically to feed into its decision-making processes, it should concentrate its information capabilities under unified management, and, if its resources are limited, within a single unit. There is often a tendency to create a new service separate from existing library or documentation facilities. While the skills needed to develop targeted information products may be specialized, those needed to bring together the body of information on which those services draw are generalized. A targeted information service

without roots in a library or documentation centre is likely to be expensive and to lack the necessary critical mass of information from which to draw credible information services. A library or documentation centre which is not concerned with stimulating the use of its information products is likely to be starved of resources. Information skills will, in most cases, be more effectively used if they are assembled into a single team, under management that is responsive to organizational needs. Resource rationalization is, in any event, likely to lead in this direction.

MANAGERIAL ISSUES

Information management

The cases reviewed here suggest that information units do not conform to very rigorous standards of management. Tools in the form of records of processing and use are available for monitoring activities and reporting results but are rarely used. It is thus possible for user groups to shift as the use of services and products increases or decreases, or as the volume or nature of the material feeding the collections changes, without any consequent action on the part of management. Clearly, if connections are to be made between the dissemination of information and its use in decision-making, a more stringent approach is required, starting with the scope definition referred to on several occasions in this report. The determination of what materials will be collected, processed and made available is critical to any programme that aims to meet information needs. Without it, it is impossible to target user groups and monitor their use of information products.

Other measures of efficiency and effectiveness are relatively easy to develop as a by-product of information processing and service provision. While no tools developed and applied within the information unit can measure the actual use of information in a particular decision-making context, they can indicate whether decision-makers or their staffs are using services and for what purposes. Their application is essential to the continued focus of collections and services on stated goals and objectives. Unless information units develop and apply standards to measure use as well as processes, they will face increasing scepticism when requests for resources are made and will have consequent difficulty in maintaining levels of service in the face of universal resource constraints.

Leadership

Another key factor affecting the credibility of the information unit is the support it receives from top management and the extent to which it is

seen at that level as an active rather than a passive part of the infrastructure of the organization – a tool, among others, to be applied to the achievement of organizational goals. Information units are more effective in environments where senior management is an active participant in setting information goals and monitoring their achievement. To build an information service that has a strong enough base and from which useful products can be drawn is a long-term endeavour; without organizational leadership that believes in information-based decision-making and policy, it is unlikely that resources will be available over time to build an effective information capability.

OTHER ISSUES

Donor funding and project-based activities

Donor funding has supported all five of the information programmes described here that are located in developing regions. None have yet shown themselves to be sustainable without such inputs, although in the case of Argentina, funding is in the form of a World Bank loan and the project is at an early stage.

In the view of many donors, the absorption of the costs of information services into the regular budgets of the host organizations has been considered as one measure of project success. Information is seen as part of the necessary infrastructure of the organization which should be covered by its core budget. Continued reliance on donor funding has often been thought to indicate a lack of belief on the part of the host institution in the value of information.

These assumptions may be cast into some doubt by the experience of REDUC, which has been almost continuously funded through project rather than core funds, and by a variety of donors. REDUC is the most dynamic of the initiatives described in the sense that it is actively seeking ways to encourage the use of the Latin American information resource it has built. Its search for new approaches may have been stimulated by the need to seek and secure new sources of funds.

It might therefore be worthwhile to reconsider the advantages and disadvantages of external funding of information programmes or at least of the operation of information programmes through project-based funding, whether the source of that funding is an external agency, the finance ministry or the education ministry itself. On the plus side may be the growth of the kind of entrepreneurial spirit needed to respond to new thinking within the education community in donor agencies and education ministries, a spirit which is lacking in many information

programmes. The negative side may be an excessive influence of donor agendas, too much emphasis on cost-benefit analysis that cannot measure the intangibles of information use, and lack of the kind of continuity necessary to build a critical mass of information.

Technologies

Education information programmes need access to expertise in information technology to explore new possibilities for information use. It is not the purpose of this paper to predict future technology trends; but it is at least clear that combinations of mass storage and communications capabilities have revolutionized concepts of information access. In the future it may no longer be necessary to catalogue or abstract materials or to build bibliographic databases, either because the data is easily available from service points or because publishing and document production incorporate such information into texts in machine-readable form. We are not yet at that point, but even then the information unit will still have tasks to perform, tasks that focus more on the identification and use of information than on processing.

The potential is enormous but there are still many parts of the world that are not served by communications networks, and many institutions that are only equipped with basic computer facilities. It is difficult to estimate when existing technologies will reach truly global levels of penetration; when they do, they will almost certainly have given rise to new technologies in the metropolises. It is likely therefore that those responsible for the provision of education information will always be required to work with different levels of technologies simultaneously in order to exploit different capabilities for different categories of users. This is already the case for some of the institutions covered in this study.

Information centres, in education as in other areas, that cannot recognize and explore the potential of technology in the context of the needs and capabilities of their own users, will inevitably become increasingly marginalized, nationally and internationally.

Training education information staff

Discussions held in the course of this study have suggested that the management of education information centres could be improved by increasing capacities to set objectives, define collections and users more clearly, monitor activities and measure information use. Training programmes, including those of international organizations, may have tended to focus too much on the application of tools for processing information – the

supply side – and not enough on the use of information and the identification, assessment and satisfaction of demand. Both are required; without a critical mass of processed information it is difficult to develop useful services. But the skills and the professional profiles of the individuals performing the two functions may be different.

Discussions have also identified a need for information staff to reach out to user communities and take the initiatives that will bring attention to their information products and services, and to develop a level of understanding of issues and methods of work which can provide a credible base for their design.

None of these ideas are new. Library school curricula have included components on management, marketing and promotion for many years. But they will need greater and sustained emphasis if the specific objective of training and technical cooperation programmes is to increase the impact of information use in an education decision-making environment.

The effectiveness of training information specialists to manage resources in a way that maximizes the possibilities for information use will, however, always be limited if it is not reinforced by senior management. While nobody would propose that senior managers be trained in information management, one module of any training programme for education information managers should be addressed to such managers; it should highlight the benefit of information use for the organization as a whole and define ways in which it can be measured from a top management perspective.

CASE STUDIES

ARGENTINA

A new approach to information in the Ministry of Culture and Education

Background

The Ministry of Culture and Education in Argentina was selected for inclusion in this study because of efforts underway to restructure and reorient the large classical library and documentation programme attached to the ministry, to revive information sharing with provincial educational documentation centres and to integrate an educational information programme within the MERCOSUR framework.

Changes in the educational information environment are part of a process of educational reform supported by a World Bank loan. Overall

guidance is provided by a Federal Council on Education which unites federal and provincial authorities. A new federal law has been passed and agreement reached on minimum curriculum contents. The basic outlines of the reform process have been set and emphasis is now on implementation. Giving new life to the information service, under the proposed title 'Centro Multimedios y de Información para el Docente' and replacing the Biblioteca Nacional de Maestros, is part of the implementation programme.

The Director of the Information Centre is one of seven directors within the ministry: the others deal with planning and budgeting, education administration, teacher training, evaluation and the quality of education, the statistical information network and wages and welfare. She reports to the Vice-Minister. The information and documentation function is thus highly placed within the ministry.

The project to restructure the information activity of the ministry began only in 1993. The current period is therefore one of transition from traditional approaches of management and service to more modern concepts of information processing and use.

CENTRO MULTIMEDIOS Y DE INFORMACION PARA EL DOCENTE (hereafter the centre)

The Ministry of Education has housed for many years a large library, the Biblioteca Nacional de Maestros, designed originally to meet the needs of teachers but which had become, in effect, a library which served mainly the needs of secondary school and university students for texts, references and reading space. Under the World Bank loan, and within the budget of the ministry, substantial resources have now been set aside to modernize the library and integrate it with the ministry's documentation centre, which had also suffered neglect in recent years. The portion of the World Bank loan allocated to information work ($1.7 million) is intended to rehabilitate the part of the building which houses the library and documentation centre and to provide equipment to update the technological infrastructure related to the security and preservation of materials, as well as computerized processing and information dissemination. An important component of the plan calls for a significant social and cultural role for the library which will be reinforced through the provision of space and equipment for video-conferencing, demonstrations of new teaching materials and technologies for school classes and teachers, and seminars and lectures. Equally important will be the refocusing of the collection on education and away from general subject materials. Apart from linking with the provincial government structures, the ministry library will also

enter into partnership with the 'popular' libraries that are usually run by community-based organizations or NGOs and which serve as public libraries and centres of informal and continuing education.

The project has been underway for approximately one year. Much work has been carried out to prepare the way for a new approach to services: in a three-month period, 130,000 books and documents have been inventoried and entered into a skeleton database to provide a minimal form of access; materials in need of binding and preservation have been identified and a programme is underway to add security tags to all materials. This is important because rare books make up a significant component of the collection.

Funding

The regular budget contribution of the ministry in 1994 was $300,000; for 1995, the budgeted amount was $1 million. The ministry is thus investing its own resources in order to build on the changes to be implemented through the World Bank loan.

In addition to the budgeted amounts, the library receives an allocation of $2,500 monthly to cover small purchases and expenses, and recovers funds for photocopies. Because of the very large number of users, 10,300 each month, this is not an insignificant amount.

The budget is prepared and managed by the director.

Management tools and structures

The World Bank loan provides the framework for management and evaluation along with the internal reporting requirements of the ministry. Because the programme is on an equal footing with other ministry programmes, reporting requirements are stringent. The director reports to the Vice-Minister, providing formal annual reports and informal reports on a weekly basis. She participates in weekly ministerial cabinet meetings with other directors and the under-secretaries. Frequent reports are required on human resources issues and on the financial situation. Activities are visible; objectives have been set and are monitored. However, because the period is a transitional one that focuses on redesigning structures and processes, the emphasis is not yet on evaluating the provision and use of information.

The staffing complement of the centre is expected to be fifty-two at the end of 1994. The staff is organized around five co-ordinators, each responsible for the library, the documentation centre, communications, technology and management. The co-ordinators for the library and the

documentation centre are trained librarians; the communications co-ordinator is a sociologist, as is the director of the centre; the management co-ordinator is a professor of English who was previously an adviser to the minister; the technology co-ordinator is a systems analyst.

The structure demonstrates two innovations. One is the communications co-ordinator post, which carries responsibilities for the training of information staff at the federal and provincial levels and for the selection of new materials for acquisition as well as for planning the cultural activities of the centre. In the long run, this post could provide the focus for examining policy use and proposing appropriate products. The other is the introduction of a post which will cut across all co-ordination functions and be responsible to the director for overall quality of products and services.

Networking structures

The centre's main network partners within the country are the twenty-four provincial education documentation centres. Within the region, they are MERCOSUR education ministries. The ministry was a member of the Red Latinoamericana de Información y Documentación en Educación (REDUC), and intends to reactivate its links which lapsed in the 1980s. The same applies to its close links with provincial centres. The ministry will receive equipment and the REDUC database and microfiche collection through REDUC's Inter-American Development Bank project.

The World Bank loan provides computers, printers, modems and fax machines to the provincial centres; twenty-two of them already are developing computerized databases using micro CDS/ISIS on a pilot basis. The new equipment will link them with each other as well as with the federal ministry in Buenos Aires.

The provincial centres will receive training in thesaurus management and the use of micro CDS/ISIS. A meeting was scheduled for December 1994 with the heads of documentation centres from the five district centres representing all the provinces to discuss technical questions relating to the management of the network. In the long term, the objective is for the provincial centres to collect, process and disseminate grey literature and official documents produced within their jurisdictions.

Co-operation with MERCOSUR has slowed as a result of delays in hiring and putting in place the new team at the centre. There has, however, been agreement to create a joint database on comparative curricula, on the development or adaptation of an education thesaurus in Spanish and Portuguese, and on the indicators to be used to measure progress in

the quality of education. The next meeting is scheduled for February 1995, when progress is expected to accelerate.

Network support tools

Training programmes in micro CDS/ISIS and thesaurus use are planned.

Micro CDS/ISIS and the IBE thesaurus are both in use in the centre but are considered to have limitations. The director would prefer to develop a thesaurus that is based on a semantic rather than a hierarchical design and would be more accommodating to the new terminological needs of the provinces. There are fears that micro CDS/ISIS will not be powerful enough to operate in a wide-area network environment.

CEPAL standards for cataloguing and indexing documentation materials (grey literature, journal articles, legislation, etc.) are in use experimentally in the centre but a final decision is still pending as to whether to confirm this choice or to adopt Marc formats. The CEPAL formats have been adopted by MERCOSUR.

In early 1995, the centre will begin a major activity to complete its existing databases with indexing terms. This work will be carried out by short-term, part-time staff who will require detailed standards and procedures which can then be applied in training programmes developed for the provincial centres.

Users and their needs

The vast majority of current users are students: 40% university students, 29% high-school students and the remainder teachers, administrators and researchers. Records of use have been kept on registration cards, but a database has been designed for future tracking of use. The main target group of users is teachers and the redesign of the information system is aimed at increasing the use of available information by this group.

Ministry decision-makers have not yet been singled out as a user group with particular needs for which specifically-designed products and services may be required, although there are plans, in the context of the World Bank project, to identify groups on which the redesigned information services should impact.

There was, in the past, no real reference service in the library. This has now been introduced and records kept of bibliographic searches which should shed light in the future on the needs of particular groups of users.

A certain amount of information on teachers' needs can be obtained from the outcome of the discussion on curriculum revision and the forth-

coming census of teachers. But the director is aware that there may be a need to focus on sub-groups within the teaching community. No formal studies of user needs have been carried out thus far.

Types and subjects of information

The existing collection covers all fields of knowledge, at a level appropriate for students and teachers. It also includes all ministry documents and publications, for which the library is a distribution point, as well as national education legislation. Two private collections of rare materials have been donated to the library.

During the 1980s, exchange agreements were allowed to lapse and many periodical subscriptions were interrupted. Efforts are now being made to relaunch exchanges and rebuild periodical collections, *inter alia* through CD/ROM subscriptions.

For the last six months selection has focused more specifically on education, broadly defined.

Services and products

An index to the approximately 2,000 items acquired in the previous six months is under preparation; 12,000 copies will be distributed to the provincial centres, schools, school administrators, public libraries and other interested potential users. A 'current contents' of new periodicals also receives wide distribution.

Inter-library loan service and reference service are both being reintroduced.

No searches of external databases are planned since a solid collection of CD/ROMs will be available. An Internet connection will be installed, mainly for e-mail and the communication of documents and data through the network. A public terminal, with simple instructions attached, is available in the Reading Room.

A series of databases has been developed from which services can be produced, both in printed and machine-readable form. In the library these are: BNAT, the general database which represents the inventory of the collections; TEACH, including all materials downloaded from BNAT which relate to education and to which the newly acquired materials will be added, indexed using the IBE thesaurus; two private library collections of general literature, social science and law; and RARE, including materials published prior to the nineteenth century. Documentation centre databases include a general database on all documents, a database of legal materials, a database on congresses, seminars and meetings on education,

a database on innovations and one on research projects and theses. Earlier versions of these databases existed, but new materials had not been added for a number of years.

Most of the library databases do not include keywords or abstracts. The first priority was to provide simple identification of the contents of the collection. A project will begin in early 1995 to add keywords to existing records through the kind of short-term concentrated programme that enabled the inventory to be created within three months. Subject searches are now carried out through title words.

Sources of information

In general, sources are considered to be national, regional and international organizations dealing with all aspects of education as well as commercial publishers. It will probably be necessary to define the scope of the collection more clearly in order to organize effective co-operation with the provincial centres and ensure a balanced and manageable supply of material. At the moment, however, efforts are directed at reinstituting exchange agreements and at identifying potential supplier organizations.

The library is a deposit for all ministry documents and publications.

Application of technologies

The Centre now uses micro CDS/ISIS in stand-alone mode for processing and information retrieval. The World Bank loan will add approximately twenty workstations linked in a local area network within the ministry and in a wide area network to the provincial centres. The LAN will operate under Novel for Windows.

The director is seeking a database management system which will allow for a more integrated approach than is possible under micro CDS/ISIS. She is also concerned that the support available for micro CDS/ISIS within UNESCO is not adequate to ensure the maintenance and updating of the system that will be needed to support the Ministry application.

All staff have been trained in basic computer concepts and micro CDS/ISIS. Most are comfortable in a computerized environment.

In addition to information processing software and word processing and administrative packages, the centre will have access to modern video, conferencing and laser technologies to support its outreach programmes.

Marketing and promotion

The director of the centre believes that the basic infrastructure must be completed before real marketing and promotion efforts can be justified.

Establishing what information is available and identifying the nature of future collections and services takes first priority. But the centre has begun to re-establish contacts with the provincial government structures, with research institutions and universities and with international and regional organizations with a view to making its plans known and seeking co-operative arrangements. A base for marketing its services and products is thus being identified.

Initial services include an index to newly acquired materials and a current contents service for periodicals. Both are widely distributed to administrators at the federal and provincial levels, to schools and to research centres and universities.

The social and cultural centre to be managed within the information programme could provide an important outlet for marketing and promoting services to teachers, researchers and the community at large, but probably not for decision-makers.

Problems and obstacles

In redesigning its information activities, the federal ministry faces a number of challenges. The major one may be how to combine broad educational information services with the focused services needed to support policy and decision-making within the process of educational reform. Other challenges relate to the introduction of new methods and approaches in an existing conservative bureaucracy, the reinvention of a federal leadership role within provincial structures that are sometimes larger and more established than the federal programme and the establishment of regional credibility, through MERCOSUR and REDUC.

When users of information—rather than users of predetermined documents and publications and of the physical facilities of the library—have confidence that they can obtain relevant assistance and materials, it will be possible to begin to assess the value of the new approaches.

The context of the reformed information service is one that places information use in a broad social context seeking to influence the information use and decision-making habits of segments of society. The enterprise is one for the long term, but it will be important to introduce some measures of increased use of information and participation in information and training events with respect to particular social groups, including different kinds of teachers and decision-makers, in order to guide future developments and provide preliminary assessments of effectiveness.

SUPPORT WITHIN THE MINISTRY OF EDUCATION: THE UNDER-SECRETARY OF EDUCATION

General support within the ministry itself is manifested by the resources allocated to the information project from the World Bank loan and from its regular budget. But there may still be a need to clarify what the ministry planning and administration staff expect the centre to provide to them that is distinct from the quantitative data available from the statistics-based Red Federal de Información Educativa (REDFIED). This network was set up to reinforce the ministry's planning and evaluation capacities. As well as educational and socio-democratic statistics, it was intended to include information about legislation and research. It has been concerned recently by the national census of teachers.

There are contacts, but no institutional links, between the centre and the statistical network. It may be too early to develop such links, given the emphasis in the centre on restructuring and redefinition of processes. But some user groups, in particular the decision-makers, will be the same and some joint planning may be useful.

The information in most demand in the ministry is information on reform and innovation: not simply information on what approaches have worked, but information on how to manage the process of innovation and broad reform: planning, organization, administration, management and evaluation.

The ministry is not a significant producer of research but would like to be able to initiate research more effectively within the university community.

Users and partners of the new Multimedia and Information Centre

The new Multimedia and Information Centre is repositioning itself on the national education information scene through contacts with institutions involved in the provision of information service, research and training in education. Visits were made to a number of such institutions to try to identify what they expect from the new centre. It is clear that the first requirements, after a period of some ten years of relative inactivity, are to rebuild confidence and credibility, the impression that the centre can provide net benefits and that co-operation with it will not simply imply a drain on other organizations' resources.

THE PROVINCE OF BUENOS AIRES DIRECTORATE GENERAL OF SCHOOLS AND CULTURE

The Buenos Aires Provincial Department of Education is as large as many national education ministries, with 13,000 education institutions

within its boundaries and responsibility for over 1 million primary school students. Its documentation centre was established thirty-two years ago and has connections to thirty local research and information centres which either are or will shortly be equipped with computers, printers and audio-visual equipment. The documentation centre has a staff of eighteen, twelve of whom have professional or technical training in librarianship, documentation or information.

The centre's target users are teachers, decision makers and administrators and provincial legislators. It provides technical assistance to local centres and feeds them with information: bibliographies, publications, photocopies and documentation in support of teacher training programmes. Records of use of the centre in La Plata exist but are incomplete so it is difficult to assess patterns of use. Planners apparently use the service but it was difficult to pinpoint the precise nature of their requests for information.

The department developed its own database software which runs on a mainframe computer accessed from the documentation centre and other department offices by terminal. Local centres do not yet have access to the database of 10,000 items.

The collection includes local, national, regional and international materials, including 870 periodical titles, all of which are received on an exchange basis. There is no budget for acquisitions.

The Buenos Aires provincial education documentation centre is more self-sufficient than those of other provinces and may consequently be more difficult to draw into a national network. It is difficult to see, at first glance, what additional services the Ministry Centre can provide other than technical advice on computerization standards and Ministry documents. It will have to move slowly and demonstrate the benefits of co-operation to draw this province into a national collaborative effort.

Mariano Moreno's Library and Cultural Centre

Popular libraries and cultural centres, run by NGOs or community-based organizations, play an important role in the provision of information and reading materials and in strengthening formal and informal education. This role was recognized in the Federal Law on Libraries which makes provision for government support. The Mariano Moreno Centre is located in a suburb of Buenos Aires and is one of the longer established centres. It works to link its library and cultural and educational activities together to build local capacities through information use.

Research on library membership, and the kind of use made of the services, is an ongoing activity which feeds into collection policies and programmes of activities.

The centre aims broadly at creating capacities at the community level: in schools, in the teaching community and in local organizations. It does not directly address policy-makers. But if one conceives of the policy process as one involving interplay between civil society and government, this kind of initiative does carry long-term policy goals.

The Mariano Moreno Centre works closely with the provincial government in support of local schools and teacher upgrading. It is developing practical links with the new Federal Ministry Centre, for example on the exchange of videos.

Institución de Investigaciones en Ciencias de la Educación

This research institute attached to the University of Buenos Aires has no institutional links to the ministry and limited resources for the dissemination of the results of its work. Its *Revista*, of which the institute receives only 200 copies for distribution, exchange and sales, contains summaries of research programmes and projects which would be useful to a wider audience. The ministry information centre could provide a channel to extend dissemination by including the journal in its current contents service.

Individual researchers are users of REDUC documents on microfiche but the fiches are not available in the institute's documentation centre which contains mainly periodicals. The institute is physically distant from central Buenos Aires and from most other government, academic and research centres, including the university's social science faculties, so an in-house collection of REDUC fiches could be beneficial.

Links with the Ministry information centre need to be reactivated.

FLACSO: FACULDAD LATINOAMERICANA DE CIENCIAS SOCIALES

FLACSO was in the process of moving and it was not possible to have extensive discussions. The institution provides post-graduate training in the social sciences and carries out research commissioned by national and international bodies. Education and international relations are the largest programmes. Many FLACSO researchers and graduates have positions in the Ministry of Education, which should serve to inform officials to some extent about FLACSO's research agenda. Some projects include dissemination tools; research reports are catalogued and made available through REPIDISCA, the national social science information network and, if selected by CIPES (see below), through REDUC. The documentation centre itself takes no steps to disseminate the reports other than

through REPIDISCA although summaries of on-going research and lists of publications are included regularly in FLACSO's annual report.

REDUC IN ARGENTINA

There used to be three REDUC centres in Argentina: the Ministry, the Catholic University of Cordoba and CIPES (Centro de Investigación y Promoción Educativa y Social). The Ministry stopped contributing abstracts during the 1980s and is now interested in rejoining the network as a full member with the right to participate in network meetings.

The University of Cordoba has actively promoted the use of the REDUC database and documents within its graduate programmes and has worked to establish four additional REDUC centres in provincial universities. It claims circumstantial evidence that use of REDUC has improved the quality of educational research within the country. The director of its faculty of education believes that information will find its way into the hands, and heads, of policy makers through better research rather than directly from the information side. He does not doubt that REDUC has a contribution to make; but that contribution is mediated through research.

CIPES is a research centre with the major objective of linking research and social actors. It feeds abstracts to REDUC and provides access to REDUC materials, and its own documents and publications, from databases in its documentation centre. REDUC is consulted mainly by researchers and students who want to gain a regional vision of educational issues and it serves an invaluable role in this process.

The University of Cordoba and CIPES have divided their REDUC responsibilities for the preparation of abstracts, the training of users and abstracting techniques. A logical role for the Ministry would be the abstracting of relevant government reports and studies, including (but not limited to) those of the Ministry of Education, but this will need to be negotiated with REDUC and the existing centres.

The only existing co-operation between CIPES and the Ministry is in the context of REDUC's IDB project which will provide additional equipment to CIPES.

The university will host an educational policy analysis seminar in 1995 with REDUC and HIID, which should also be of interest to the ministry.

CONCLUSIONS

The project described briefly above aims at reorganizing educational information within the Ministry of Culture and Education and within the

Argentinean social context. The project addresses many groups of users with different responsibilities, work patterns and habits of information use. It requires managing significant change within the library and documentation centre complex and knitting close relationships with many institutional actors on the national and regional education scenes. It is a long-term projects whose results will have to be assessed in stages. Initially the emphasis is on identifying and providing access to available resources, redefining collection policies and putting in place a network linking the twenty-four provincial centres. Use assessments will have to come later, but policies on target groups of users, including Ministry officials, should be developed at an early stage to ensure appropriate information inputs into the management of the reform process and provide a basis for justifying the long-term investments that will be required from the Ministry.

BOTSWANA
Educational information

Botswana was included in this study not because it represents typical problems in the African environment; it does not. It does, however, provide an example of efforts to reinforce links between the different communities responsible for educational planning, research and the provision of information.

The economic environment

Botswana must be one of very few countries in Africa with an economy that has continued to expand over the last few years. The context in which educational information presents itself is one in which the basic structures—on the education side and on the information side—have not suffered deep funding cuts. The Ministry of Education receives 25% of the government's annual budget; secondary education has expanded rapidly. There is uncertainty about the future, but for the moment funds for staffing the major information organizations and stocking their collections are still available at reasonable levels. Lack of resources and infrastructure are not, therefore, major impediments to the dissemination and use of educational information.

The research environment

The issue of the application of educational information to planning and policy-making is being raised not by the Ministry of Education or by any of the information institutions but by the Faculty of Education at the

University of Botswana, which is actively involved in education research networks at the regional, sub-regional and national levels. The three networks are: ERNESA (Education Research Network for Eastern and Southern Africa); BOLESWA (Botswana, Lesotho and Swaziland Network); and BERA (Botswana Education Research Network). Networking initiatives began in 1982 following an IDRC-funded conference which resulted in the creation of national associations in Botswana, Lesotho and Swaziland to promote, co-ordinate and exchange education research at the national and sub-regional levels. In 1985 ERNESA was created with three sub-regional arms: the existing BOLESWA network and similar networks for countries in Eastern and Central Africa. Networks at the three levels are interlocking structures which aim to build research capacities, to facilitate the application of research results to education policy-making and practice, to disseminate research information inside and outside the region and to use networking to promote the co-ordination of research and debate on research issues. The overriding goal at the national level is to promote the development of active educational enterprises in each country based on close links between the policy, planning and research communities. The Southern Education Research Initiative (SERI) provides a global framework within which to promote exchanges among countries of the south.

ERNESA provides an important supporting framework for the national and sub-regional networks. ERNESA was created in 1985 with support from IDRC, DSE, SAREC and SIDA, and continues to receive external funding. Its development plan for the period 1993 to 1999 calls for almost US$ 3 million of donor funding for the three-year period to 1996, but it also proposes to generate income to cover 40% of ERNESA's costs by the end of the period. The development plan places considerable emphasis on information and documentation; among its outputs are:

- state-of-the-art reviews, annotated bibliographies and profiles of research capacities designed to identify research gaps and provide a holistic picture which can easily be absorbed by the planning and policy-making community; and
- programmes for training documentalists in each national network and for the co-ordinating centre in Gaborone.

This emphasis on information seems to have grown out of a real recognition by the members of the network of the need for a more systematic information base to support their activities. IDRC has agreed to fund about 25% of the ERNESA co-ordinating centre budget for the next three-year period and approaches have been made to other donors.

The co-ordinator of ERNESA in Botswana was the main contact point in arranging interviews and obtaining information for this case study.

The information environment

There is no single institution in Botswana responsible for collecting, processing and disseminating educational information. The four institutions that do collect such information, along with other materials, are the National Library, the National Archives, the University of Botswana Library and the National Institute for Research and Documentation (NIR). The collections of these four institutions, insofar as they relate to education research reports and theses and other relevant materials produced within the country, overlap to some extent since all have responsibility for maintaining collections of materials produced within Botswana. The National Institute for Research has the closest relations with the education research community. The co-ordinator of the ERNESA network and the senior documentalist at NIR are undertaking training together in abstracting and network procedures. The NIR and ERNESA are expected to share documentation facilities. NIR was originally created as a documentation centre with a strong focus on socio-economic development information and in recognition of the need to forge closer links between producers and users of such information. Its broad mandate and its current plans are therefore relevant to the concerns of this study.

It is the responsibility of the National Library to staff government libraries, and libraries within the school system. Twenty 'librarians' have been posted in government departments and nineteen in educational institutions. These librarians are not all fully trained, some may be the product of short certificate programmes. The Ministry of Education does not benefit from this programme to operate a central library or information service. The Curriculum Department within the ministry was identified as being more aware of the need for good information support than other departments.

The University Library has two staff dedicated to ensuring good coverage of educational information in the university collection, but needs of students and faculty are the determining factors and no attention has been given to informing other communities about the information available. The National Library has a staff member responsible for selecting and training individuals posted to schools and training institutions, but not for servicing and disseminating the education collection. The same is true of the National Archives. NIR is thus the only one of the four institutions with a mandate to promote the use of information with development practitioners.

The information community in Botswana should benefit from the existence of a Department of Library and Information Studies at the university which offers training and education programmes ranging from a one-year certificate course to a master's degree. It also organizes short courses, including a recent course designed for educational documentalists organized jointly with the Faculty of Education. The DLIS covers a broad spectrum of information issues in its programme, including mass communication, rural information services and information technology. The Dean of the School puts considerable emphasis on the developmental aspects of information. The school is active within the university having recently led a strategic planning exercise for the university as a whole. However, the existence of this programme does not appear yet to have had a notable impact on the importance that is attached to the availability and use of information within the government community, nor on the status of information practitioners. There is little co-operation among the major information institutions and no effective forum within which professionals can come together to address common problems of information access and use and identify solutions.

Few countries in Africa have the opportunity for support to the local information community that is provided by the presence of DLIS at the University of Botswana. It is a potentially important resource, the benefits of which have not yet been fully realized.

The planning environment

As with librarians, so there is a central government service to provide planners to individual government departments from a central pool in the Ministry of Finance. The focus of planning methodology is on resource allocation and project monitoring and applies in the same way to all ministries. It is essentially a quantitative rather than a qualitative process and suffers from lack of input from education specialists. A recent organization and methods study of the ministry has recommended the creation of an applied research unit which will enable the ministry to build its own education-oriented policy, planning, research and statistics skills and interact more effectively with the planners.

Factual information and data on the variables needed for planning education are considered by the ministry to be more critical than research results. The Central Statistical Office collects basic statistics, but they are several years out of date before they become available; the ministry itself receives end-of-term reports from the schools and teacher-training institutions within the system.

The Botswana education system was based on the British model. Increasingly, however, when looking outside the country for experiences useful to educational planning, models elsewhere in the region and in other developing regions, in particular the newly industrialized countries in South-East Asia, are considered to be of more interest than the European experiences.

EDUCATIONAL INFORMATION WITHIN NIR

NIR is the research arm of the University of Botswana. It was created in 1975 with three objectives: to promote, co-ordinate and conduct research on issues of socio-economic, environmental and cultural development; to develop national research capacity; and to document, publish and disseminate the results of research.

NIR was chosen for detailed examination partly because of the close contacts that it is developing with the ERNESA and BERA networks and partly because of the emphasis it has always given to identifying, processing and disseminating the grey literature produced within Botswana, including the unpublished results of educational research, with a view to directing it towards the development planners. As has been pointed out, there is no single institution within the country that focuses exclusively on educational information.

The Documentation Centre: management and funding

Documentation and dissemination were always key elements of the NIR programme. The documentation centre received funding from IDRC between 1985 and 1990 for staff and equipment. NIR has since absorbed staff costs into its regular budget. The documentation centre is now one unit alongside such units as publications and computing and the research division. It has five professional posts, three of which are currently filled, and the same number of posts for para-professional and clerical staff. Work within the unit is divided by subject area in line with the new focus of NIR on development sectors rather than on cross-sectoral development material. The unit is headed by a senior documentalist who reports to the Director of NIR. The three professionals in post have undergraduate and post-graduate training.

The documentation centre budget is included in the overall budget of the institute. Staff could not provide a budget figure. They may comment on budget proposals but are not involved in the budgeting process. No external funding is currently available for the documentation work, although SAREC is funding aspects of the research programme.

Staff suggested that there had been some recent reductions in the funds available for the purchase of books and other library materials. This is less critical than it might be in other libraries or information centers since the mandate of NIR is to collect unpublished materials from local sources which normally would not be priced. However, if the intention is now to collect subject material more generally, the limited budget for acquisitions could present problems.

Management tools

Four objectives were formalized in the context of the IDRC project: (a) to collect, organize and disseminate Botswana's national information and documentation related to its economic and social development; (b) to participate in the regional Pan-African Development Information Network (PADIS); (c) to train NIR staff in the organization and operation of a specialized documentation centre; and (d) to determine the computer equipment, staff and training needed for NIR to carry out its mandate as the primary focal point for information and documentation in the country, and to prepare for participation in regional networks. Objectives do not appear to have been reformulated since the end of the project, even though co-operation with the regional PADIS network is now minimal. The primacy of the NIR role with respect to documentation may also be questioned given that both the National Library and the University Library are also attempting to collect Botswana material systematically.

Little is in place to facilitate the management and monitoring of documentation processes and activities. Staff develop their own workplans but these do not appear to be shared with NIR management. A form has recently been designed to monitor users' requests and the success in responding to them.

No evaluation was known about, although one might have been expected at the conclusion of IDRC' project funding, and may in fact be available at IDRC.

Management structures

The unit is small and there is no need for complex structures. The three professionals take responsibility for all work related to the subject areas assigned to them, including indexing and abstracting and the development of networks with local research centres and NGOs to increase information flows into NIR.

The senior documentalist reports to the director but only for general guidance.

Networking structures

NIR administers the African Energy Policy Research Network, a regional network of twenty-five professionals from thirteen countries. It also chairs the Botswana committee of the Eastern and Southern Africa Technology Policy Studies Network. Its projected co-operation with ERNESA is a related initiative, but one which places more emphasis on documentation. This co-operation will be consolidated following the upcoming training mission, which will be undertaken jointly by the senior documentalist and the ERNESA co-ordinator to REDUC, the Latin American Education Documentation Network based in Chile. Co-operation with ERNESA will be strengthened by NIR participation in BERA, which will facilitate the collection of information from the local research community. Documentation centre staff are trying to identify or develop less formal networks in other areas, such as gender research.

Experience with regional information networks, particularly PADIS, managed by the Economic Commission for Africa, has not been positive. NIR received very little support or information from the network and now limits its contribution to PADIS to the provision of its annual printed index to Botswana development literature (Devindex, Botswana). According to the senior documentalist, PADIS focused on regional superstructures when national structures were still weak, and limited largely to the capitals of the country. Extending networks and involving communities beyond the capital cities is still an issue that does not receive enough attention at the regional and international levels.

Network support tools

The software and formats applied by the documentation centre are both in wide use. Since the centre is not leading or participating in information exchange networks, it has had no need to develop networking tools. If the co-operation with ERNESA and BERA involves the sharing of documentation work, tools for cataloguing, indexing and abstracting will need to be adopted or developed. Tools in use in REDUC might be appropriate, particularly if inter-regional information exchange is a goal.

Users and user needs

No systematic attempt has been made to identify the needs of users, but mechanisms are being put into place to monitor the information requests received at the centre and the degree of user satisfaction with the results. Researchers within NIR are an important user group, but the documenta-

tion centre is also a national resource intended for use by the development community, in Botswana and elsewhere.

Types and subjects of information collected

The material collected by NIR is 'grey literature': seminar and workshop papers, research reports, proceedings of conferences and unpublished documents. Theses are not collected by NIR but by the University Library. In the collection dating from 1985, there are about 1,500 items on education, either concerned directly with the situation in Botswana or with experiences in other Southern African countries. More emphasis will be placed on the collection of education materials as the co-operation with ERNESA and BERA is consolidated.

Services and products

The main product of the documentation centre is an annual volume, 'Devindex Botswana', which includes abstracts of all material collected. About 350 copies are printed and it is on sale for 10 pula (about $4) a copy. A triennial accessions list is also produced for wide distribution among development research institutions interested in Botswana or Southern Africa.

'Devindex' material is included in a database which is used to conduct subject searches. No other databases are available. The documentation centre has been provided with a modem to enable communication and access to external data sources, but it does not function and cannot, it seems, be repaired locally.

The documentation centre provides reference and photocopy service but no loans. It has a small reading room.

The centre offers a training programme which operates through one- to three-month attachments. It focuses on management of a documentation centre rather than on computerization. A small charge is levied for training which is open to other countries of the region.

'Devindex' is now a record of general development literature. With the more focused subject approach the material may be organized differently to provide easier access to education materials.

In the past the senior documentalist scanned newsletters to identify up-coming conferences and training programmes and circulated relevant announcements. She gave up this popular service through lack of time.

Sources of information

Because the centre focuses on grey literature it is very dependent on informal networks to identify sources and producers of information.

Users of information are in many cases also producers. Individual and institutional members of BERA will be key future sources and the ERNESA network should keep the centre informed of materials produced within the Southern and Eastern African regions. SERI is a potential channel for identifying interesting materials produced in other developing regions as well as for disseminating Botswana materials.

Application of technologies

Micro CDS/ISIS was installed in the documentation centre as part of the IDRC-funded project. It is used only for database creation and information retrieval and not for any management tasks. Four computers function in stand-alone mode. NIR is expected to move shortly to the university campus and its computers will then be networked on to the university system. There is no existing connection to the outside world since the modem cannot be repaired.

The computers are not new and will need upgrading at some point. The computer budget is part of the institute's central budget, but in the context of project funding for the ERNESA secretariat a computer is foreseen for joint use by the two documentation centres. Computer support is provided by the Institute.

Marketing and promotion

There is no active marketing or promotion effort although staff recognize that they could do more, particularly with 'Devindex', which is the only bibliographic database of Botswana materials containing abstracts.

Staff would like to develop packages of information for research seminars in order to improve communication with the research community and increase user confidence in their ability to provide service.

Problems and obstacles

Within NIR there appears to be limited contact between the documentation staff and the researchers. The former do not feel that they have a common agenda with their research colleagues.

When the documentation centre was created, it had a mandate to cover socio-economic development—broadly defined. Documentation staff were not associated with individual research projects so close links were not established with the research staff and there are no mechanisms through which the documentation and research staff can exchange views and check the reality of their mutual expectations.

This sense of isolation in the documentation centre within the NIR affects the capacity of staff to establish effective contacts with other communities, including the policy-makers who should have been a major audience for 'Devindex'.

The documentation staff recognize that they need to reach out more to user communities and assess better the information they collect and the communities that can use it. For them to do so would require greater institutional support than appears available now.

The documentation staff identified the education system itself as a factor limiting the importance attached to information. Teachers are not trained in information use. Communication channels run from the administration to the schools and not in the other direction, thus discouraging informed debate on issues. Not all school or teacher-training school librarians are adequately trained to help students master information use. Many of those who are trained through 'sandwich' programmes are not given the opportunity to manage libraries. Library qualification does not impact on career development.

FACTORS WHICH MIGHT AFFECT THE SUCCESS OF ERNESA/NIR CO-OPERATION

In spite of a favourable economic climate for planning and the existence of a body of skills and leadership in information at the university, Botswana to date does not appear to have been notably more effective than other countries in creating a climate which encourages information-based policy-making, planning and decision-making in education. The ERNESA initiatives to incorporate documentation functions into both the co-ordinating centre and the national networks reflect recognition of this fact, as does the decision of the ministry to create its own applied research unit. Networking among researchers almost always incorporates information exchange, but rarely does it incorporate responsibility for providing documentation training and rarely does it recognize the need to support the routine production tasks of a documentation centre. It is encouraging that the educational research community in Botswana is trying to bring documentalists and information professionals into partnership with researchers, policy-makers and practitioners in its efforts to promote the application of research results.

A partnership approach

The success of this venture will depend in part on the extent to which the information professionals can and are expected to participate as full

partners providing information support to research initiatives and disseminating their results. Information services are more effective when they feed on, and feed into, substantive activities. Both sides have a role to play in ensuring fruitful partnership: on the documentation side, initiative and outreach are required to promote dialogue with users to determine needs and approaches to meeting them which might not conform to traditional library and documentation practices. On the side of the researchers, support and leadership of those involved in the information activity is necessary to nurture a spirit of shared enterprise.

Expectations

It will be important to determine expectations at the outset. Within NIR the documentalists pointed out that there were no mechanisms for verifying the mutual expectations of the documentation and research staff. If expectations are not understood the risks of failure are high.

This could impact on the training proposed for 'low-level documentalists' in the national ERNESA nodes. The training programme is ambitious and comprehensive and may exceed the capacities of 'low-level' staff. Leadership, and clear statements of expected outcomes, will be critical if results are not to disappoint and cast doubt on the overall objective. The NIR documentalist is well qualified to handle responsibilities in the co-ordinating unit and should be responsible for helping the national units establish and monitor quantitative and qualitative targets.

Outreach and marketing

None of the information institutions contacted engage in active marketing, promotion or outreach activities, although staff can identify potentially useful initiatives. In a small community like Gaborone, personal contacts as well as more institutional approaches will be critical in bringing information to the attention of those outside the immediate institutional environment. The involvement of the NIR documentation staff in BERA might resolve part of this problem. But part of the problem might lie in the habits and practices of the information profession which do not encourage promotion, marketing and outreach efforts.

Institutional factors

Communication among different information institutions is limited and few knew about the BERA/ERNESA plans to strengthen educational documentation capacities. Some people contacted independently

expressed the view that the NIR documentation centre would be absorbed into the University Library after the move of NIR to the campus since two Botswana collections in the same location could not be justified. This could affect the current plans even though separate funding may be available for educational documentation work in the ERNESA budget. Starting a documentation centre from scratch is very different than building on an existing institutional base.

Donor funding

The extent of donor funding of both research and documentation activities raises questions about the long-term sustainability of the programmes.

The education system

A number of people suggested that the textbook-based and hierarchical nature of education in the country limits people's capacity to seek information to underpin their decisions and actions in later life.

POINTS OF INTEREST FOR THE INTERNATIONAL COMMUNITY

Regional and international networking

NIR experience suggests a need for prudence in international and regional systems: superstructures can easily outstrip the capacity of national systems to benefit from them. International systems and networks must provide clear and sustainable benefits to national institutions if they are to succeed.

Information needs

A clear preference was expressed for factual information over research results, and for models from countries in the region or elsewhere in the South rather than from industrialized countries.

A role for international organizations

Membership in international organizations imposes a requirement on national ministries to report on the status of education in the country and to participate regularly in international conferences and meetings. There is room for co-ordination among international organizations requesting regular reports from national ministries of education.

CONCLUSIONS

The Botswana initiative to integrate the planning, research and information communities into a partnership in support of educational development could help demonstrate the principle that information programmes gain effectiveness to the extent that they are closely connected to substantive activities, and are measured by their contribution to those activities. It could also demonstrate the importance of building useful and usable systems of support outside the information community. The experience is worth following.

JORDAN:
The Education Reform Plan (ERP)

Jordan was included in this study because of its ambitious education reform plan which incorporates research and information components. The ERP is a ten-year comprehensive programme aimed at improving the quality and raising the standards of basic and secondary education. It has its roots in the National Conference on Educational Reform, held in 1987 but preceded by a four-year period of consultation, and has high visibility aided by the keen interest and support of the Crown Prince. The ERP is funded by the Government of Jordan, loans from the World Bank and the Japanese Overseas Economic Co-operation Fund, and grants from a number of bilateral agencies. The Harvard Institute for International Development (HIID) is an active partner.

Educational research and development were identified as one of the seven action plans defined in the ERP and have been institutionalized through the National Centre for Educational Research and Development (NCERD). NCERD is an independent body under the High Commission for Science and Technology. It is governed by an Executive Committee which includes the secretaries-general of the ministries of education and higher education and the director-general of the Vocational Training Corporation. The president of NCERD sits on the Board of the Ministry of Education. NCERD's functions are:

- impact evaluation;
- operate as a database and education management information system;
- be a centre of excellence for documentation and dissemination of information;
- innovative research and development;
- education management and administrative evaluation; and

- talent search to broaden the skills of outstanding individuals in the education system.

The database and management information system and the centre of excellence are the functions of most interest here. The President of NCERD was known to be interested in the problem of increasing the availability and the impact of research results both in Jordan and in the Arab region. Unfortunately, he was unexpectedly unavailable at the time this study was carried out, and it was therefore impossible to benefit from his own ideas and experience. What was identified, in terms of qualitative information reporting research results, both within NCERD and within the ministry, was more limited than expected. Until the present time, emphasis has gone to joint work on data collection and analysis (to EMIS (the Education Management Information System) through which close links have been forged between the research programmes of the NCERD and the planning and research functions of the Ministry.

RESEARCH LINKS BETWEEN NCERD AND THE MINISTRY IN THE CONTEXT OF THE ERP

The centre is concerned with policy research, which is directed at the aims of the ERP, and development, involving project appraisal, monitoring, evaluation and financial control. Its work is therefore directly linked to the ERP for which the Ministry of Education is the main implementing ministry. There is no distinction in the staffing of NCERD between research and development; since all staff work in both areas. NCERD staff consider it critical that ministerial research and planning staff do not perceive them as critics or competitors, but as collaborators in the joint effort to reform the country's education system.

This collaboration is demonstrated in the work on the database and education management information system and its conversion to the analytical tool which provides the basis for NCERD research and subsequent ministerial policy decisions.

The basis of the EMIS is data which has been collected annually by the Ministry of Education for over twenty years and used for the publication of its annual statistical yearbook. The main function of the data collection exercise appears to have been reporting rather than the creation of a database for planning or decision-making. With the help of the World Bank, the ministry and the centre worked together to consolidate reporting forms to facilitate the collection process; data collection continues to be the responsibility of the ministry, and the ministry is the 'owner' of the

data. The data is made available to NCERD which has supplemented it through sample surveys and developed a comprehensive set of indicators and 'policy files' which provide the basis for monitoring project implementation. NCERD has recently published the indicators, covering 1988 to 1992, in tabular and graphic form, in a compendium which will be updated annually. More importantly, the data has been put to use to identify policy issues and support their resolution in a number of areas including school location, school construction, teacher training needs, upgrading needs, etc. The value that NCERD has brought to the data activity has been to develop the analytical tools through which the data can find application in a decision-making environment. The database has been used, for example, to introduce equity considerations into school construction and location programmes and to plan the reduction of rented and double-shift schools. Policy shifts have resulted, on the parts of both the ministry and the World Bank. A joint ministry/NCERD initiative is now training ministerial staff from regional directorates in computer use and data entry procedures as the first step in a process of decentralization of data collection and decision making to the Regional Education Directorates. Once initial data is available, regionally training in data analysis will follow.

The database shared between the ministry and NCERD, supplemented by survey data collected by NCERD, provides the baseline data necessary for monitoring the results of the education reform plan and is therefore critical to its success.

There is close collaboration and frequent consultation between the research and planning functions of the ministry, and some key line users of data, and the staff of NCERD. They are engaged in the same project and a number of ministry staff have transferred to NCERD; because they are working jointly on data use and analysis, on projects that have been agreed upon within the ERP, the mechanisms for discussing research results are established and the chance of the adoption of the results is high.

DOCUMENTATION IN NCERD AND THE MINISTRY

NCERD

The links between the two institutions are very much 'data based' and have little to do with sharing other kinds of information in a systematic way. It was unclear, for example, whether NCERD was even depositing its own research reports systematically with the ministry library, although many copies are distributed within the ministry.

The function of the centre—'to become a centre of excellence and a medium for documentation and dissemination of information and state-of-the-art thinking on educational issues'—may be the least developed area of its activities. As was pointed out by senior NCERD staff, it is impossible to do everything at the same time.

The documents and publications section, under which the documentation centre falls, has responsibility for editing and publishing the Centre's own publications and reports, for translating reports and providing summaries in Arabic for English-language HIID and World Bank reports, for disseminating NCERD materials through mailings and participation in book fairs, for preparing press releases during seminars and for maintaining a press clippings service—as well as for the creation of a documentation centre. Neither of its two staff members is responsible for documentation on a full-time basis and neither has a professional qualification in librarianship or documentation.

There is as yet no library or documentation centre for the use of staff or outside users although the intention exists to create such a centre and the collection and processing of books and documents has begun.

Problems do not appear to be directly related to resources. Money is available to bring in advisers and technical help from the University of Jordan, and its expertise was used to develop the cataloguing system which has been applied to produce sets of catalogue cards for the books and documents that have been collected so far. These cards have not yet been filed and the documents to which they correspond are not on shelves. Money appears also to be available to purchase materials, for example the latest edition of the *Encyclopedia of education*, although no regular budget has been allocated for acquisition of such materials.

The problem appears to relate more to planning. Books and documents received so far have either arrived on an *ad hoc* basis from organizations like UNESCO or UNICEF, or the Ministry of Education, or have been obtained to meet the needs of individual researchers. No regular supply channels have been established. There is no collection development plan which identifies the main areas of concentration of the collection. Users are considered to be the centre's research staff and people from other Arab countries who come to NCERD for training, but there has been no systematic consultation with the research staff to identify what their needs are. Little thought has been given to appropriate services beyond lists of new materials, or to the potential benefits of computerization. There is an interest in computerization, but it does not appear yet to have led to a survey of appropriate systems.

To achieve status as a centre of excellence for the dissemination of educational information and state-of-the-art thinking, NCERD will need to apply planning methods to this aspect of its work and add staff with expertise in documentation. It has potential in the form of an increasingly rich mine of data, reports in machine-readable form and in-house computer expertise. None of the approximately thirty reports which it has produced so far were found in ERIC, UNESCO or IBE databases. Focusing on its own information output could provide a good base from which to plan wider services. But the needs of NCERD staff will also require attention.

The Ministry of Education

The Ministry of Education has a traditional documentation centre, also located alongside translation and publications functions, within the Documents and Publications Directorate. The centre was created with UNESCO support thirty years ago and initially received many of its publications from UNESCO. The reduction of free distribution, from UNESCO as from other international organizations, has limited this supply. The centre serves primarily the ministry and has no networking arrangements within the country or outside.

Staffing and funding. The documentation centre has a staff of four who all have two-year professional diplomas or have followed short training courses. The acquisition budget is about 1,300 dinars annually (US $2000) and is stable. The head librarian prepares estimates of acquisition costs at the beginning of each year.

Management. Monthly reports are provided to the directorate on materials received (books, periodicals, documents) and users (those who consult materials and those who ask questions but do not use the materials). There does not appear to be any management feedback nor any formal statement of objectives beyond serving the needs of ministry staff (mainly the research staff) and of teachers, administrators and university students in education. No formal survey of users' needs has been carried out.

Collections. The collection consists of reports produced by the ministry (the only collection, although in the future such reports will be deposited with the National Information Centre), four local newspapers (three in Arabic, one in English), Jordanian official gazettes, fifteen specialized periodicals (mainly from the Arab region), documents supplied by international organizations (mainly UNESCO and UNICEF) and by NCERD,

and purchased books. It covers all aspects of primary and secondary education, although with an increasing emphasis on computer applications in education, counselling, planning and administration. Most material is in Arabic, with a small proportion in English. Most represents information about the Arab States or Western countries.

Services. Loans and reference service is provided to ministry staff and external users (in the latter case with the guarantee of a ministry staff member).

There are four main printed services: a monthly list of new acquisitions; an alert service which appears irregularly to provide abstracts of particularly interesting new items; a monthly current contents for new periodical articles; and a biennial compendium of national education legislation. These products are distributed within the ministry, including its regional directorates. No active marketing or promotion programmes have been carried out.

Given that there are no other specialized libraries in education in the country, the potential for the ministry service to increase its use and visibility would seem to exist.

Computerization. There are no firm plans for computerization, but the head of the library has already identified UNESCO's micro CDS/ISIS as the best potential system because of its wide use within the country.

INFORMATION USE BY NCERD AND MINISTRY OFFICIALS

Information use in NCERD

The research staff of NCERD do not satisfy their own needs to keep up-to-date with the professional literature or gather background materials related to their projects through an in-house service. Staff subscribe personally to key professional journals and receive journals through their membership in professional societies. They receive personal copies of reports from international organizations. University libraries can access external databases (ERIC and Psych Abstracts, for example) but charge for the service and it is not frequently used either to meet individual needs or the needs of the centre. Technical assistance visits and participation in international meetings were prime sources of information and means of keeping up-to-date. Personal contact with Ministry of Education staff to check and explore assumptions developed from available data was also considered critical by some.

The universities were considered to be the best, but not adequate sources of educational literature in the country. There is no educational information centre as such.

A National Information Centre has recently been established which should work with ministries and other public bodies to rationalize and improve the supply of information.

NCERD staff clearly see a mismatch between the kind of policy research with which they are engaged and the need for a broad information base reflecting ideas and experiences developed elsewhere. A bibliography and an analytical review of research in Jordan on basic education have been produced, but in collaboration with Yarmouk University and under contract with HIID. Their own needs are expressed in terms of priority for data and factual information. Qualitative or descriptive information is seen to have relevance in an academic research environment, but not when research is addressing specific problems defined by their own particular context. At the same time a general lack of awareness has been identified: on the part of policy makers who do not recognize what information might be available; on the part of researchers who traditionally are only interested in the area of research on which they are concentrating; and on the part of the providers of information who do not understand the needs of their potential users.

Information use in the Ministry

The primary interest in data on the part of NCERD staff was confirmed in the ministry in two ways. First, the point was made that the nature of the education system and the specific context in which implementation decisions must be taken determine the relevance of information. It might not be much help in most concrete situations to take ideas from others. While factual information about education structures elsewhere might be of benefit, that information would be better absorbed through study visits than through documentation so that differences in context could be properly recognized and understood. Second, there was a general satisfaction, within the ministry planning unit and with those responsible for the school construction programme, that, through the joint efforts of the ministry and NCERD, they did have access to a solid database and that it did not need supplementing from other sources to support their own functions. Complete transition to the use of the computerized database has not yet been made; planners still use their manual records in parallel with the database provided by NCERD so their confidence in a fully computerized system is not yet assured.

The one person who did express a need for qualitative and descriptive information was responsible, *inter alia*, for preparing speeches, drafting reports and completing questionnaires for international organizations. She expressed the need for more recent literature, particularly journal articles, than was available in the documentation centre although she considered it to be a reliable source for the reports of the ministry and for UNESCO documents.

NCERD DISSEMINATION TECHNIQUES

Because NCERD does not process its research reports in traditional documentation form, this does not mean that no importance is attached to sharing the results, or, perhaps more particularly, the methodologies developed. A number of mechanisms are used.

Its own reports and documents are distributed in quantities varying between 250 and 1,000 copies within Jordan and within the Arab Region, including to NCERD trainees. In fact, NCERD helps stock libraries in the education ministries of trainees with its own and other publications even though it does not yet have an operational library of its own.

NCERD considers itself to be a regional resource centre and as such organizes regional meetings through which its experiences can be shared with educational planners and decision-makers in other Arab countries. Its consulting services in the region serve a similar purpose.

UNICEF and UNESCO are both following the Jordanian ERP in the context of the 'Education for All' Programme. They co-host seminars with NCERD which serve as another channel for communicating the results of its research and experience.

The World Bank, HIID and bilateral donors who are funding components of the ERP programme are also seen as channels for disseminating its results.

Meetings and seminars provide an opportunity to attract the public's attention to progress in the education reform programme and NCERD keeps the more general public informed through press briefings and press releases.

NORRAG initiated contact with NCERD to request summaries of the results of its work which have been reproduced in *NORRAG news*. This seems to be the only English-language journal, database or newsletter that has published such summaries to date. The IBE, UNESCO and ILO ought to be interested in including in their computerized databases some, if not all, NCERD documents.

Book fairs in countries of the region provide a more general dissemination channel.

While there is an interest in NCERD in making the results of its work known, this has not yet led to a perception of the value of ensuring that its documents are processed systematically within traditional documentation systems through which its experiences could receive global dissemination.

ISSUES

The point was made repeatedly that the information needed to support policy research is not the same as that needed to support academic research. For the former the critical element is data that defines the context and dimension of the specific problem being addressed. If the policy researcher does not feel the need to test his assumptions against the documented experience of others, it would be surprising if the decision-maker, to whom his output is directed, would feel that need. However, it is not inconceivable that more politically-oriented, and perhaps less numerate, policy makers might pose questions related to experience elsewhere.

Beyond data, there was a recognition that information about education structures and related legislation might be useful, but the preferred mode for obtaining such information was through visits and personal contacts which would reveal the context in which such structures developed. This suggests that interactive queries and contextual information need to be built into information systems if they are to come close to meeting human skepticism.

NCERD research and data is taken seriously as a basis for decision-making by Ministry of Education officials. Part of the reason for this lies in the close institutional links between the two organizations in the context of the ERP. This means that the staff in NCERD who are responsible for building the EMIS, for providing the data in support of decision-making, are thoroughly conversant with educational problems. But equally important are the personal links that have developed between NCERD and ministry staff and the concern of the NCERD staff that their work be seen as reinforcing rather than competing with the efforts of the ministry.

Another factor that reinforces the use of NCERD data by the ministry decision-makers is probably the interlocking management structures which link the two organizations, and their senior management staff, in the context of the ERP. Within a framework that has the overall support

of the top levels of government, decisions are taken collectively and in recognition of the roles and responsibilities of the different institutional actors.

Allusion has been made frequently above to the importance of personal contact for obtaining and assessing information and for disseminating it. Personal contact takes more importance in many cultural contexts than it does in Western industrialized societies. Study tours, visits, and face-to-face contacts may be expensive and time-consuming ways of obtaining information. But if libraries and documentation centres, and the increasingly computerized services they provide, are to compete they must learn to interpret information needs, and information sources, in terms which are familiar to their users, and they must move outside the confines of the documentation centre to do so.

CONSIDERATIONS FOR INTERNATIONAL CO-OPERATION

The basis of NCERD's success in getting its database in use in the ministry is the partnership between the two organizations and their staffs. There is no division between the 'education' people and the 'information' people. This barrier is much more difficult to break down at the regional or international level than at the national level or the institutional level where users are theoretically within reach. Barriers still exist, however, at all levels. There is no question that information services are nourished by subject expertise, and are more effective if they are closely associated with substantive work. How then to generate such linkages between the international and national levels is the challenge facing international documentation and information services.

LATIN AMERICA:

REDUC: Latin American Educational Information and Documentation Network

REDUC (Red Latinoamericana de Información y Documentación en Educación, the Latin American Educational Information and Documentation Network) is co-ordinated by CIDE, a Chilean non-governmental, non-profit, Jesuit organization concerned with educational research and development. REDUC was conceived in 1970 at a meeting

of Latin American education research centres and has now been in continuous operation for twenty-five years. Because of this long history and the success of REDUC in obtaining external funding and in generating new ideas about the links between information, research and educational policy, there exists a more extensive record of REDUC activities than for the other initiatives described in this set of case studies.

CIDE: Centro de Investigacion y Desarrollo de la Educacion

CIDE itself is managed by a directorate of seven individuals selected by the Jesuit community. This Directorate in turn appoints the CIDE director, who has been in post for the life of REDUC. The directorate plays an overseeing and advisory role, but management is vested in the director with the assistance of deputy directors for research, finance and administration. Six programmes operate within the Centre, five research programmes (on the family and the school, secondary schools and youth, education for work and training, popular education and a framework programme aimed at making the link between research and practice in the other programmes) and REDUC. Programme co-ordinators meet every two weeks to discuss issues of common interest.

All CIDE funding is project-based; when funds are no longer available, projects cease. REDUC is one of the most stable programmes in CIDE and has received funding over the years from, *inter alia*, the International Development Research Centre (IDRC), the Canadian International Development Agency (CIDA), the United States Agency for International development (AID) and the Inter-American Development Bank (IDB). Because of the need for continuity in the documentation function, a small reserve fund has been created to maintain the co-ordinating function at a basic level in periods when external funding dries up. This fund has had to be used on two occasions.

The fact that REDUC lives on grants from donor agencies requires that it continuously adapt to changing perceptions of information needs within the development community. Since it conceives of the collection and processing of research reports and similar materials as the foundation on which all other information services must be built, it is required also to ensure that the basic processing work continues in periods of financial shortage. The linkage between the routine documentary production tasks and the creative and innovative tasks related to information use is one of the key features of REDUC.

REDUC

REDUC is a co-operative network of twenty-eight Latin American education centres in the public and private sectors. Its objective is to gather and communicate the knowledge generated through research and development programmes in order to improve the quality, equality and efficiency of education in the region. Its aims have always incorporated the application of information in a decision-making context and been driven by commitment to the solution of education problems.

CIDE co-ordinates REDUC and the director of CIDE is the president of the network.

Funding

REDUC, apart from the reserve fund, is funded entirely through grants from external sources. Its budget is thus determined on a project basis. There are, however, recurrent costs which do not fit easily into a project framework and which include the co-ordinating centre staff, the operation of the central database and microfiche collection, grants to national centres to produce information for the network and biennial network meetings. Annual running costs are considered to be on the order of US $100,000. Project funds have always been used to support the national centres more than the co-ordinating centre. A current Inter-American Development Bank project, for example, will provide computers and microfiche readers to sixty-two organizations ('stakeholders'), including the REDUC national centres and will cover the costs of two policy analysis seminars that incorporate REDUC products into policy analysis training materials.

Nevertheless, most costs of operating national centres are borne by the centres themselves and estimates place two-thirds of network costs at the country level.

Staffing

REDUC's general co-ordinator is an educational planner. The president of its executive committee is the director of CIDE. The treasurer of the network, and an adviser to its co-ordinating centre, is an ex-CIDE staff member who previously had responsibility for network co-ordination. Management is not, therefore, in the hands of information professionals.

REDUC's staff includes: a documentalist (trained first as a teacher) who is responsible for making a first selection of regional materials for the database, ensuring the quality of contributions received from national centres and for responding to users requests at CIDE; a technician

responsible for building the database from national contributions; a part-time analyst responsible for abstracts and the definition of subsets of the database for publication on diskette; a part-time systems analyst responsible for applying new technology to product development; and a telecommunications specialist who is installing an Internet connection, eventually to be a server for the use of the NGO community in Chile. Two other staff provide secretarial and administrative support.

There has been a high degree of continuity in key REDUC staff over the life of the network.

Management tools and structures

Objectives have been clearly stated over the years. The co-ordinating centre maintains records of database growth and use of the system in Santiago. While this data is available, it does not appear to be used for regular monitoring of use or of the continuity of contributions received from individual national centres.

Overall network management is monitored through biennial meetings that bring together the heads of national centres and the documentalists responsible for processing materials.

Within CIDE itself, management control is ensured by the participation of the REDUC co-ordinator in regular meetings of programme heads, by the active involvement of the director and by occasional 'retreats' which review achievement of objectives and new directions.

Networking structures

REDUC is made up of twenty-eight participating centres from nineteen countries in the Americas. Membership has been almost constant since the late 1970s. Four centres are located in ministries of education; the remainder include private research centres, universities and regional centres specializing in some aspect of education or training. Unlike many information networks, REDUC does not restrict membership to one key institution per country which is then responsible for processing all national materials, but seeks partners which share its interest in promoting the dissemination of research results and are prepared to commit some of their resources to this end.

Participants make a basic commitment to collect and process studies originating within the country and to share them with other members through the publication of periodic compilations of abstracts of national interest and the transmission of abstracts to the co-ordinating centre for incorporation into the regional database.

The co-ordinating centre processes regional and Chilean materials and publishes an annual compilation. Regional materials are selected by the co-ordinating centre for regional interest. All such materials are put on microfiche. A complete microfiche collection is available in all participating centres.

The basic work of the network is bibliographic, but it has never been simply a bibliographic network. It has always attempted to create links among research communities across political boundaries. Network meetings involve researchers and documentalists, thus creating a dialogue between the two communities and raising the status of documentation work. In recent years, the education policy community is being drawn more closely into the network and to products developed to support policy analysis functions.

REDUC has never perceived itself to be in competition with other networks in the region operating in related areas: CINTERFOR's vocational training network, or UNESCO's REPLAD on educational planning and administration, for example. CINTERFOR is a member of REDUC and co-operative programmes have been developed with REPLAD. REDUC connects outside the region with the research review and advisory groups (RRAGs) operating in the North, in South-East Asia and in Eastern and Southern Africa to promote communication among education specialists on a wide range of issues and acts as the RRAG for Latin America. REDUC, in some cases, provides a publication and dissemination channel for the outputs of other networks. In some cases other networks reinforce its own access to key user communities. The watchword is complementarity and not competition.

The REDUC network model, with its focus on influencing public policy in education, within a system where the co-ordination function is ensured by an NGO but which includes both governmental and non-governmental actors, could be seen to demonstrate the growing role for NGOs, along with governments, in determining public agendas and subsequent policy responses. REDUC has explored recently the possibility of turning itself into an international NGO but rejected that formula because of its government membership.

Network tools

The IBE thesaurus is used for indexing documents. Micro CDS/ISIS is the standard software now in use in all centres. A manual has been developed to encourage standardized approaches to the preparation of descriptive abstracts and the selection of keywords. A data entry manual is currently under development.

Training has been provided in documentation procedures, documentation issues are on the agenda of each network meeting and the documentalist in the co-ordinating centre is in regular contact with her counterparts.

Some centres transmit records in text processing formats which have to be converted at the co-ordinating centre for incorporation into the micro CDS/ISIS database.

A recent evaluation of the database carried out for CIDE by the Nicaraguan national centre has pointed to some lack of consistency and accuracy in the database which suggests the need for more training and more rigorous quality control.

One tool now lacking that might prove useful for promotion of REDUC and for increasing and systematizing its coverage would be guidelines on the scope of the system to help in the selection of relevant materials.

Users

To profile REDUC users would require an analysis of use statistics at the national centres as well as in CIDE. This was beyond the scope of this study, although impressionistic evidence is available from user institutions in Chile and Argentina.

CIDE records indicate that the main group of users is academic: postgraduate students and researchers. But, in the view of the CIDE documentalist, there has been an increase in use by government officials in recent years.

CIDE is very aware that the critical connection between information availability and its application to concrete educational problems is not yet made; what makes REDUC unusual in the information networking world is its constant efforts to redefine its approaches, products and services in response to the problem.

User needs

Mismatches between information services and user needs occur most often when information services are not integrated into the substantive work of the organizations to which they belong. In some cases this can be overcome by user-need surveys. With REDUC, efforts have been made, from the inception of the network, to promote dialogue between the research staff and the documentalists. At least within CIDE, and at the level of network meetings, documentalists are involved in substantive and policy discussions; formal network meetings are often accompanied by

technical discussions on the research and policy agenda. Within CIDE, the REDUC co-ordinator is a member of the programme committee and in constant dialogue with the research teams. REDUC itself includes a research component focused on identifying needs and designing new products.

CIDE staff, and notably its director, are very well attuned to the educational research and policy communities, in Chile, in the region, and internationally, and ensure that their knowledge is used to shape REDUC services.

This close association of documentation with technical work appears to have led to a high degree of satisfaction with REDUC products at least in the research community. Current efforts are directed at increasing use by other communities: teachers at the grassroots level and policy-makers. In the former case, REDUC is involved in a continuing dialogue with teachers from a poor municipality in Santiago to identify problems in their schools and material in the REDUC database that could respond to those problems. The programme is at an experimental stage; after a series of weekly meetings, the database has recently been installed in the office of the municipality to give teachers the opportunity to use it themselves. Follow-up sessions will assess results and CIDE will probably produce a subset of the database containing items that match the problems identified by the teachers. The approach to policy-makers is through decision-making tools and simulation games incorporated into educational planning and policy seminars. The tools incorporate material from the REDUC database along with other information which may include data and text. Such seminars are sometimes organized by CIDE and sometimes by other organizations, OREALC for example. These efforts have the double objective of increasing the use of information and the application of knowledge to educational problems and of feeding back into REDUC information which will help it to develop more relevant services and products.

Types and subjects of information

The REDUC database contains about 10,000 entries, growing at the rate of about 400 regional items each year, plus the national contributions. An additional 10,000 items were collected and abstracted before computerization in 1985. The items included are research reports, but not research narrowly defined. They include less formal studies, state-of-the-art reports, background papers prepared for meetings and seminars, descriptions of experiences and innovations and models. The balance, which

initially was in favour of classical research which made up 80% of the collection in the first years, has now shifted in favour of a broader concept of grey literature.

There is no formal statement of the scope of the system. Scope is determined by the output of research, reflection and practice in the region. Regional items are selected on the basis of their interest to the region as a whole; they generally concern more than one country but single country reports may be included if the results they record are of sufficient interest. The coherence of the selection is very much dependent on long years of experience; documenting the criteria may now be useful.

The language of the database is the language of the documents included in it: mainly Spanish, with some Portuguese. Coverage is regional.

Services

REDUC conceives three levels of service.

The first level includes information products built on the descriptive abstracts which are the prerequisite for more sophisticated services because they represent the collective regional intellectual effort on education problems from which knowledge can be drawn.

At this level are *Resúmenes analíticos en educación*, published in regional and national editions. The abstract is intended to provide sufficient detail to replace the need to consult the full document in a first review of available information. All regional materials are microfiched and available in all national centres. Annual indexes, by author and subject, are also produced.

This first level of service also includes thematic bibliographies produced for particular events or groups of users, in printed form or on diskette, as well as bibliographies of press clippings. Diskettes can be provided with a hypertext search function instead of the more complicated Boolean technique applied in micro CDS/ISIS.

At the second level are analytical studies for which the 'resumenes' provide the raw material. These are state-of-the-art reports on issues of region-wide significance, fifteen of which have been produced to date.

The third level of product is based on the use of hypertext techniques to incorporate abstracts, text and data into policy simulation exercises or to facilitate navigation through the fulltext of documents. These tools focus on information use in a policy context and are implemented in educational policy seminars and training sessions.

REDUC is considering the production of a CD/ROM which would contain the fulltext of the current year's supply of documents along with

the complete set of abstracts. Because of the variations in infrastructure within the user community, this will not replace the need for diskette, printed and microfiche services in the immediate future.

CIDE has access to Internet, as do five national centres. For the moment it is used only for e-mail but there is a potential to exploit Internet further for REDUC members.

In addition to its three levels of products and services, REDUC provides training not only to its own members, but now also to RRAG networks elsewhere in the world. A recent session was organized for the United Republic of Tanzania and Botswana.

Charging for services

The REDUC database and the microfiche collection are available for sale at US $3,500 and US $3,900 respectively. Sales figures were not easily available. The salability of the database is limited by the fact that it is being distributed free by IDRC on a 'network of networks' CD/ROM. The database has been sold at much lower 'special' prices to some user institutions.

Sources of information

Sources are national REDUC centres and the national, regional and international organizations which supply information directly to CIDE.

Application of technologies

Basic technology to date has been micro CDS/ISIS, which is now implemented network-wide after early experiments with another system, and microfiche. The boundaries to database technology were expanded initially to more user-friendly search techniques incorporating hypertext links but they have been pushed further through the development of navigational tools that facilitate the incorporation of various types of data and information in simulation models and to exploit texts. CD/ROM is seen as a potential replacement for microfiche in the long term if funding can be identified; it would also increase significantly the possibilities of retrieving specific information from the document collection.

Telecommunications, Internet facilities in particular, are not yet widely used either in CIDE or in the national centres but thought is being given to the role they may play in the future of REDUC.

The computer equipment available in REDUC (six 286s and one 386 linked through a NOVEL network) are not state-of-the-art technology and may need replacement in the short to medium term. There is some

possibility of adding some capacity through the IDB project. CIDE does not have access to computer and communication expertise on a continual basis.

Marketing and promotion

Promotion is part of the life blood of REDUC, partly because of the nature of the network and its close involvement with research and policy communities and the participation of its staff in national, regional and international meetings on education. Non-REDUC CIDE staff share the task of promoting REDUC and at least some of them recognize that they have a unique asset. But a more compelling reason for promotion is the need to generate funds to continue the network. This requires not only the promotion of existing services but also constant efforts to rethink how information can be used to respond to current education and development paradigms. The fact that REDUC has generated almost constant funding over a twenty-year period testifies to the considerable success of its promotional efforts. But there have nevertheless been periods when no funding has been available and periods when donors lost interest in basic documentation work.

Marketing of products is more difficult. Selling requires special skills which are not prevalent in many 'public good' organizations. But beyond that, the database is of limited interest on the international market because of language and its regional focus. And within the region, marketing structures for databases and information products are not highly developed. Complicating the sales task further is the fact that IDRC is distributing REDUC data at no cost.

Problems, obstacles, unresolved issues

REDUC has moved further towards integrating documentation functions into substantive work than most other organizations. It has not entirely solved the problem.

There have been recent signs that inputs from national centres are slowing down, and this, along with questions already raised about the quality of the database, have led to a realization within CIDE that attention must be given to reinforcing the first stage of its service base if it is to maintain its growing capacity to produce more user-oriented services. Funding will have to be found to reinforce training and quality control.

Apart from this fundamental issue, the central problem facing REDUC at this stage of its development is how to make the critical link so that its information resources are used in a policy-making and decision-making

environments. Some of its efforts to make this link have been touched on above: policy tools and seminars incorporating information components and dialogue with teachers. In developing these approaches, CIDE has allied REDUC with other key institutions, for example UNESCO's regional office, OREALC, and its educational planning network, REPLAD.

But it is also exploring other approaches all aimed at reinforcing knowledge-based decision-making in education.

One such is the concept of intermediaries or brokers. Decision-makers and practitioners are unlikely to have the time or the habits to use document abstracts directly. Intermediaries are required to select and synthesize relevant information: in a prepackaged form as with the state-of-the-art reviews, or iteratively as with the direct dialogue with teachers. Such approaches represent REDUC's attempt to predict future topical issues and consequent information needs, and, at least in the latter case, to redefine approaches to information services. But they cannot react to immediate needs. For this, the broker needs to be located close to the decision-maker and to understand how to access and manipulate relevant information services. The traditional mode of communication between information centres and users is a research mode; REDUC is trying to define a policy or decision-making mode.

Two other ideas under discussion in REDUC, and more broadly within the education research and decision-making community in Chile, are worth mentioning: the concept of an 'intelligence service' located in the Minister of Education's office which would incorporate statistical, documentation and research services; and the delivery of integrated social services and information on a decentralized basis to empower local communities. Neither of these ideas are limited to CIDE or to Chile. They are examples of sharing ideas across international as well as regional boundaries which could be fruitful.

USERS OF REDUC IN CHILE

Ministry of Education

A meeting was arranged with an advisor to the minister who was familiar with REDUC services through previous contacts with CIDE. He cited one example of REDUC relevance to his current responsibilities: for preliminary exploration of the reform of the secondary school system. But he was not a regular or active user.

His main information needs were for information on global trends, particularly related to competition and labour markets, and political infor-

mation, received through the press and political journals, for legislation and regulations and for the studies and data produced within the Ministry.

Descriptive reports produced by ministries for the International Conference on Education and other international events would not be of much interest because they are seen to be self-serving and not sufficiently objective or critical.

Existing ministry databases cover educational quality and achievement, physical facilities and infrastructure, and higher education. These databases are soon to be connected through a local area network.

The ministry documentation centre suffered neglect during the 1980s; there are plans to link it to the ministry's legal information centre and to computerize both.

Plans are also under consideration to decentralize information to the provincial governments for public use.

PIIE: Programa Interdisciplinario de Investigaciones en Educación

PIIE is a private, non-profit corporation within the Universidad Academica de Humanismo Cristiano, similar to CIDE in its concern for improving the quality and equality of education. It also shares CIDE's preoccupation with linking the results of research with government action but its main strategy in this regard is to work on action projects with the government. It has not addressed the issue from an information point of view and recognizes the value of REDUC action in this regard. It is also a user of the REDUC database which is installed, with micro CDS/ISIS, in its documentation centre. It appreciates REDUC as an instrument to provide access to regional literature for institutions that cannot themselves afford to participate in regional networks. It co-operates with REDUC on the development and implementation of policy seminars using tools which incorporate, *inter alia*, REDUC abstracts, in order to try to link political decision-making with information coming from research.

A major research project underway in PIIE involves the provision of basic information about education, along with other social issues, in order to facilitate integrated planning at the community level. One hurdle is creating an environment in which the data becomes comprehensible and usable to the officials and the citizens involved in influencing and implementing local decisions. This concern is clearly related to CIDE's interest in information and decentralization.

OREALC

OREALC and CIDE are partner institutions in a number of respects.

In the first place, OREALC has collaborated closely with CIDE in the development of the policy models and simulations. They are used in the annual policy seminars for senior education ministry officials which have been organized since 1989. Studies have shown that 80% of trainees are still in post, and several are ministers or vice-ministers. This enables REDUC to address a key user community and provides an audience for the testing and evaluation of its services.

OREALC has established REPLAD, a regional network for educational planning and administration. Network membership includes all chief educational planners from the region, several post-graduate programmes and research centres, and REDUC. REPLAD provides another vehicle through which to promote the use of REDUC; REDUC provides REPLAD members with the means of disseminating their reports and studies throughout the region.

Another OREALC initiative involving REDUC is the creation of a Latin American laboratory for the assessment of the quality of education. This is an IDRC-supported project in seven countries which aims to establish minimum standards and monitoring and follow-up mechanisms. REDUC will provide the information base, and participating universities are expected to feed reports into REDUC.

OREALC/REDUC co-operation is based on a shared belief that planning is moving from a technique-based to an issue-based approach that is only viable with a strong information base. Co-operation can be a powerful tool to increase the assessment and analytical capacities of the education ministries in the region.

CIDE research staff

CIDE's own staff have a number of ideas about how to improve the impact of REDUC, at both technical and organizational levels. On the technical level, some would like to see more substantive abstracts and more systematic selection of items for the database. They see the potential for closer links between REDUC and the research programme aimed at linking knowledge and practice, and the need for information tools to support integrated development at the community level. Some are also contemplating ways that REDUC can either serve as a model or help generate ideas, in relation to the southern RRAGs and SERI, the south-south linking mechanism on educational research.

LESSONS

Organizational focus

CIDE's reason-for-being is not research or information but more effective education. Information collection and processing for archival purposes, to preserve institutional or historical memories or for research and teaching are perfectly legitimate and play an important scientific, social and cultural role, but they cannot be expected to influence decision-making. For that to be the case the organization itself must be focused on the achievement of a mission and the information service must be designed in function of that mission. This could be said to be the case for ministries of education, except that the mission is often obscured by the need for the daily administration of systems, by bureaucratic constraint and by political necessity. CIDE, and consequently REDUC, does not forget that its aim is to improve education—not to develop the perfect educational information system.

The personal factor

Individuals are not indispensable, but they can make an enormous difference. Most information networks, faced by the requirement to generate funding and adapt to the donor market place, would have long ago deserted the documentalists and given up the basic bread-and-butter tasks of the collection and processing of information in favour of more glamorous activities. For close to twenty-five years, Patricio Cariola, the driving force behind REDUC, has managed to secure the funding needed to build the Latin American education memory, while at the same time leading the network to explore, in a realistic manner, new opportunities to increase the application of knowledge to the solution of educational problems. Long-term commitment and patience are necessary to build, and keep up-to-date, the foundation from which the information services needed for information-based policy-making can be developed.

Alliances

CIDE has chosen to ally itself with regional and national organizations in Chile that can extend the reach of REDUC and increase and diversify the users to which it has access. It thus continuously challenges itself to identify new approaches to the communication and delivery of information. But it also enables it to keep in close touch with what is happening on the education scene regionally and nationally.

Capacities

The capacities of REDUC's co-ordinating unit in CIDE are stretched, not only by the volume of work but by the wide range of issues that it is required to address: database quality and integrity; abstracting standards; marketing; system design; cutting-edge software applications; information use in widely different contexts; and funding. A small but stable allocation of funds to strengthen the load-bearing capacity of the first-stage service, through access to local consulting skills in aspects of information science, could go a long way towards ensuring that the critical use questions will continue to receive the attention they deserve and that the information required to feed the answers will continue to be available.

Conclusions

CIDE and REDUC do not claim to know how to link available information to educational planning, policy-making and decision-making at the political and practitioners' levels. But they may be unique in asking questions and exploring approaches within a framework that brings together the worlds of education, policy, action and research, and information. If progress is to be made towards issue- and information-based planning and policy-making in education, it must take account of CIDE's experiences and its problems.

SOUTH-EAST ASIA/PHILIPPINES

REIN: the Regional Educational Information Network of the South-East Asian Ministers of Education Organization

REIN is a network of co-operating information centres in six ASEAN member countries (Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand), the co-ordinating centre for which is located at INNOTECH (Regional Centre for Educational Innovation and Technology) in Manila. This case study will look at how REIN operates, how it relates to other INNOTECH activities and how it is perceived by some of its potential user organizations in the government, university and private sectors in the Philippines.

INNOTECH

INNOTECH is one of eight regional projects of the South-East Asian Ministers of Education Organization (SEAMEO) which was created to

foster regional co-operation through education, science and culture. INNOTECH is mandated to identify and help solve common educational problems and to anticipate educational needs at the regional level, as well as to assist member countries in identifying and solving country-specific problems. In order to achieve its ends it has developed research, training and information programmes. All three programmes are relevant to this enquiry. Both the information and the training programmes are channels for the dissemination of research results.

Research and training

INNOTECH's research programmes are problem-oriented and geared to the development of model, replicable solutions. Research topics include, *inter alia*, alternative delivery systems for mass primary education, strategies to reduce instructional time, learning systems for improving the quality of life, instructional programmes in basic education for use in formal and non-formal settings and indigenous learning systems. Research is often undertaken jointly by member countries and results have been adopted within and beyond SEAMEO countries. Results are all the subject of evaluation and become input into the INNOTECH training programmes in the form of audio-visual materials, computer-aided instruction packages and more traditional manuals and documentation. These packaged outputs of research projects are available for consultation, sale and distribution and are often the basis of dissemination seminars and of reports in the INNOTECH *Newsletter*. Dissemination is supplemented by the transmission of information and experience from the participants in INNOTECH training courses and seminars to their colleagues in their home countries. This collegial transmission of experience and documentation is considered to be essential to the implementation of INNOTECH research results in country settings.

Information

The Information and Educational Technology Division contains four sections dealing with information (publications and public relations), REIN, the Learning Resource Centre, Educational Technology and Computer Services. There appear to be plans to bring REIN and the Resource Centre closer together under single management.

REIN

Work on REIN began in 1989 with the six countries identified above. Cambodia and Viet Nam have recently expressed interest in joining the

network. Its purpose is to facilitate the exchange of information among countries of the region and to encourage them to build national databases of educational information.

Management and funding. REIN is basically the responsibility of one staff member although senior management of INNOTECH is also associated with consultation meetings and promotional work. In the period to 1992, it received support from AIDAB (Australian International Development Assistance Bureau), IDRC and IBM (for the provision of computers to the co-operating information centres); staff costs have always been covered by INNOTECH. Allocations from INNOTECH's endowment fund enable grants of up to US $5,000 to be made to the co-operating centres for the submission of materials.

REIN is a project and its objectives were stated and agreed in the original project proposal in 1989. These have been confirmed at consultation meetings with the co-operating centres. Within the REIN Co-ordinating Centre there is no systematic monitoring of activities in relation to achievement of objectives in terms of strengthened capacities in member countries. Levels of input to the system are relatively low and no products have yet been produced so there is only a limited amount of activity to monitor.

Evaluations have been carried out by external consultants from Australia and Canada on the contents and the design of the databases. Unevenness of quality of inputs and difficulty of absorbing the additional workload implied by participation in REIN were among the findings.

REIN data collections and databases. REIN is concentrating its networking activities on the creation of two machine-readable databases and on the collection of statistics, factual information and information about experts. It does not consider bibliographic information to be a priority.

The two existing databases cover policy documents (in full text) and development projects, including action research projects. A total of 805 records are now in the two databases, with well over half having been contributed by Malaysia and Singapore. Guidelines have been issued to co-operating centres to help them select material for the databases and report in appropriate formats. The policy database may include constitutional provisions, basic education acts, education chapters in national development plans, national legislation and decrees and ministerial directives of national purview. Projects may be included when they are designed to initiate innovation or facilitate change.

Scanning equipment is not available and the texts of documents are therefore recomposed either in English or in the national language before

they can be entered into the policy database. This inevitably introduces errors which will affect the quality of retrieval.

The language of preference of the databases is English, but entries may be submitted in national languages.

Immediate priorities are to expand the two existing databases and computerize the hardcopy materials containing statistics, factual information and information about experts.

Network communications. Formal consultation meetings of network members have been held in 1990, 1992 and 1993. One participant from each centre is funded by REIN. Both Malaysia and Singapore have funded their own participation on occasion. The consultation meetings established priorities and operational procedures.

In-country training programmes were carried out in all countries in 1990. An average of ten staff were trained in each country. Malaysia and Singapore requested additional training which was provided at INNOTECH in 1992. All costs of training in Manila can be borne by INNOTECH, but countries are required to cover transport costs. This seems to be an impediment to the entry into the network of Cambodia and Viet Nam. Funding has not yet been identified to cover costs of future training at INNOTECH.

Apart from the consultations and the training programmes, network communications are on the basis of need. No regular communication tools have been created and there has as yet been no regular delivery of information products to co-operating centres. The only documents produced by REIN are working papers and reports for the consultation meetings.

Network tools. Database formats and guidelines for the submission of data have been prepared and used as the basis of training programmes. The IBE and the ERIC thesauri are used for indexing. But the most popular tools provided to network members may be the computers provided by IBM and the UNESCO micro-CDS/ISIS software which can be used for other applications as well as the creation of databases on education.

Users and user needs. Before the REIN project document was prepared, a needs assessment was carried out through consultation in SEAMEO member states. This defined the need for a kind of 'ready reference' service for education ministries in the region. No further work has been done on user needs. The REIN co-ordinating unit considers that the co-operating centres must be the ones to judge what is appropriate to meet needs in a national context. The regional centre is not well-placed to assess user

needs for the region as a whole. Strong national databases are seen as the first priority and an appreciation of the need for regional information and regional perspectives is assumed to follow from that. The potential benefits of comparative information within the region and the priorities assigned to different types of information at that level do not yet appear to have been fully explored. REIN has not formally consulted its users to provide firm answers to the questions: what do countries most want to know about each other and how can the basis for that information be put in place?

The Philippines is a privileged user of REIN data because of the location of INNOTECH in Manila. The Department of Education, Culture and Sport, which hosts the co-operating centre, has used REIN to prepare background material on the education structures in the region in preparation for a study mission to collect material on curricula and length of schooling. REIN provided, *inter alia*, comparative tables and copies of organizational charts. This type of information, even this document, might be of interest to other REIN members. The national centres in Malaysia and Singapore have also apparently provided REIN with examples of useful services produced from their national databases.

REIN's strategy is to produce a profile of education systems within SEAMEO countries, which would be an elaborated form of the document produced for the Philippines, and then seek feedback from users to see whether this corresponds to their expectations of REIN service.

THE LEARNING RESOURCE CENTRE

The main information collection within INNOTECH is not held by REIN but by the Learning Resource Centre which provides information support to INNOTECH staff and course participants and channels to REIN information on policies and statistics which it receives from members of SEAMEO.

Management and funding. The Resource Centre has three staff members; it too used to benefit from external funding to build its collection, but is now funded from INNOTECH endowments. Its major collection requirement is to update material for training courses, but emphasis is now also going to strengthening the South-East Asia collection, particularly for countries which have recently returned to the organization (Cambodia, Laos, Viet Nam).

There is no formal statement of objectives or mission but the chief librarian has introduced policies for acquisitions and circulation, while

records are maintained of outside users of the services. No evaluation has been carried out of resource centre operations, except as part of an overall evaluation of INNOTECH.

Collections and databases. The Resource Centre has a collection of over 13,000 books and reports and 150 specialized journals. It also contains all project proposals that are produced by INNOTECH course participants. It is attempting to build comprehensive collections in some areas (e.g. educational statistics) for SEAMEO countries but has not yet achieved this end.

The Resource Centre manages a bibliographic database containing over 11,000 records of books and documents and 1,300 records of project proposals produced by course participants. There is potential for improved collaboration with REIN, in support, *inter alia*, of REIN users. Distribution of acquisitions lists, organized by country, on diskette, in micro CDS/ISIS format, once the computer systems of the Resource Centre and REIN have been aligned, could help co-operating centres build their own information collections and could be relatively simple to develop. Distribution of the Resource Centre's current awareness service of journal articles could also be of use. This potential synergy between the two services appears to have been recognized by INNOTECH in the course of a recent strategic planning exercise.

Users and user needs. INNOTECH teaching and research staff and course participants are the main users of the Resource Centre (80–90%). In the wider community, teachers, researchers, administrators and supervisors use the facility, but not on a large scale, and no systematic attempts have been made to attract them. Records have been kept identifying external users, but no survey has been undertaken to assess their needs and the extent to which they have been satisfied. Staff believe that management and supervision, human resources development and curriculum planning and development are the main subjects of interest.

Networking. Until now, the Resources Centre has played no role in REIN's networking activities. Joint approaches for collection purposes and the use of the Resource Centre databases would seem to be fruitful avenues to explore.

Problems perceived by REIN. The main external problem perceived by the manager of REIN is the change in personnel at both the operating level and the level of political commitment in member countries which affects confidence in the network and requires repeated training of national staff. Funding also appears to be a problem now in that it is not

possible to provide training to new members in either their own countries or in Manila. Language presents an obstacle to both the exchange and the use of information. Fulltext documents in national languages, when they are not accompanied by substantive abstracts in English, are not likely to be widely used in other countries. The process of recomposing material either in the original language or into English is likely to lead to errors that will reduce the value of the database for information retrieval.

REIN moved from a preparation phase into a pilot phase over a four- to five-year period. The last year has seen a consolidation of the pilot phase, with emphasis on improving quality rather than the quantity of material in the databases. The slowdown in input and the absence of output products is likely to reduce momentum in terms of the information aspects of the network. The introduction of computer technology and the demonstration of teleconferencing have introduced co-operating centres to new ways of working which may to a certain extent offset the lack of information products.

Support to research or involvement in research networks is not felt as a priority which may explain why bibliographic information and abstracts are not considered to be important.

Problems perceived by the Resource Centre. The Resource Centre staff do not have their own contacts with sources of information in member states, which hampers their ability to expand their collection of regional materials. INNOTECH cannot make separate approaches seeking information from national centres for REIN and the Resource Centre. Until the two activities are rationalized it will be difficult to improve the coverage by the Resource Centre of the literature produced in the region, including research reports.

Language is a problem for the library as well as for REIN; some material in national languages is received but it is only processed if course participants are available with the appropriate language skills.

USERS AND PRODUCERS OF EDUCATIONAL INFORMATION IN THE PHILIPPINES

A SELECTION OF POTENTIAL REIN (AND INNOTECH RESOURCE CENTRE) USERS

Discussions were arranged with the Department of Education, Culture and Sports, the National Manpower and Youth Council, the College of Education at the University of the Philippines and the Fund for Assistance to Primary Education in order to learn about their own resources in

educational information and their use of REIN services and the Resource Centre information collections.

Department of Education, Culture and Sports (DECS), Office of Planning Services

DECS looks to REIN for factual information rather than research results. In the context of global competition, the Philippines is also in competition with its neighbours and the success of education and training policies in these countries is an important determining factor. It was in this context that the department sought comparative information from REIN on the education systems in SEAMEO countries to prepare for a study tour of the region. REIN provided a comparative matrix and organization charts. The department was satisfied. It was not seeking comparative analysis from REIN but factual information on how education is organized in other countries: texts of legislation and regulations, constitutional requirements, curricula, information on development projects and basic statistics. It has, however, used INNOTECH on occasion to organize panels of experts to analyze and synthesize available data and information.

The Office of Planning Services' Research and Statistics Department operates a 'mini-library' which contains basic education statistics for the Philippines as well as documents produced within the department providing round-ups of research commissioned by the department, management information, and basic education facts and figures; it also includes the annual reports from the regions, the master list of schools and consolidated enrolment reports. The 'mini-library' is really just a corner of the open-space office used by the research and statistics staff, but space is allocated for users, and there were several while I was there. I had the impression of a reliable and well-used source of information.

The Research and Statistics Department provides project data to REIN; the head of the department wondered whether there would be a REIN consultative meeting this year and expressed some concern that REIN momentum might be waning.

National Manpower and Youth Council (NMYC), Regional Office, Region IV

NMYC is responsible for technical and vocational training in the Philippines. A restructuring is underway following the report of an Education Commission which will bring NMYC together with the relevant units of the Education Department to create a Technical Education Development Authority.

NMYC has initiated a five-year project (NMIS) to develop a labour market and human resources information system to support its needs for policy formulation, human resources planning, trade testing and certification, guidance and placement services and general administration. A nation-wide network will eventually link NMYC clients and partners to this system. On the documentation side, INFODOS includes a library and a database to serve a wide range of users including policy-makers, planners and researchers and those responsible for the development of curricula and training programmes.

Information facilities in both the central office of NMYC and the Regional Office for Region IV suffer limited facilities for reproducing materials and this is one reason that Region IV is attempting to build up its own regional library service: support from INFODOS is not sufficient for it to build a broad knowledge base for its own planning staff or to provide adequate information support to the training institutions under its jurisdiction. INNOTECH is a potentially important source of information on how problems have been tackled in other countries. REIN helped, for example, to provide information on how other countries had dealt with the problem of employer resistance to hiring women following training in non-traditional trades.

The director of Region IV is activating contacts with external organizations (including the International Bureau of Education in Geneva) to help build her information resources. She is seeking information that is written in non-technical language, that includes clear recommendations and executive summaries and that explains why approaches work and why they do not. Time is a limiting factor in the use of information: managers work in terms of 'need to know' and 'nice to know'. The former must be available through an organized information service; the latter can be obtained through ad hoc requests. The central NMYC services do not seem adequate to meet either of these needs.

College of Education, University of the Philippines

The College of Education is a significant source of policy-relevant research focusing on such issues as: literacy; the human and physical underpinnings of teacher education; the knowledge, attitudes and values of students; and access to education. Research may be funded by the university or by outside organizations (including ASEAN and UNESCO) or be absorbed by the College. Research is a requirement for faculty appointment. At the highest level, the link between research and policy is encouraged by the presence on the University Senate of representatives of Congress.

Some projects (for example on teacher education) are commissioned by DECS which then handles dissemination through the organization, *inter alia*, of national seminars.

The College has its own library which contains the biggest collection of materials on education in the country—and the only collection in some areas, like special education. It has a collection on comparative education, but is content to leave the main responsibility in this area to INNOTECH. The library is open to the public and serves the faculty and students of the College; through its service to Ph.D. students it has a potential impact on the use of information by future policy makers.

Links between the college and INNOTECH are strong because many INNOTECH staff came from the college. Between the two libraries there is good co-operation and the college does not intend to duplicate what should be INNOTECH's strength in comparative education in the region.

Senior college staff were not aware of SEARRAG (the South-East Asian Research Review and Advisory Group on Education) although the librarian was aware of the SEARRAG initiative to develop a programme to abstract educational research in the region. It appears that this initiative has not received much institutional support in the Philippines.

One interesting development at the level of the university is the establishment of an Education and Information Cluster which brings together the College of Education, the Institute of Library Sciences and the College of Mass Communications. The cluster will begin functioning in 1995 and should allow for the promotion of closer links among both students and faculty in the various disciplines. This suggests that at high levels in the university there is an awareness of the potential of bringing information tools to bear more effectively on educational problems.

Fund for Assistance to Private Education (FAPE)

Private schools and universities account for a significant proportion of the Philippine education system: 85% at college level, 33% at secondary level and 5% at elementary level. FAPE was founded in 1968 to promote private education and to represent its interests to the government. FAPE is funded through a trust established by the governments of the Philippines and the United States.

FAPE provides direct support to private education (for example, through the provision of teacher scholarships) and mobilizes support from other sectors; but it also advocates in favour of private education through policy research; this has required it to establish what it considers to be the country's authoritative database on private education, and to develop effective public relations and media programmes. Its studies on the cost

of education in the public and private sectors were influential in persuading the government to subsidize private education. Its studies on tuition fees similarly influenced the deregulation of fees. It is assisted in its attempts to influence policy by the fact that its board is chaired by the Secretary of Education. But the rationale for its existence is in a sense dependent upon its ability to influence public opinion and government policy.

The four support services in FAPE—public relations and the media, research, the education database and the library—work closely together. A major tool for research and for media relations is the *Yearbook on private education* which assembles all available data into a single source for wide dissemination within the public and private sectors. The data can be used as a basis for adjusting curricula to enrolment trends and for targeting areas where school enrolment is low. It is an essential basis for FAPE advocacy programmes as well as for research.

FAPE is also undertaking a series of studies on the linkages between higher education and the labour market (Higher Education and Labour Market Studies), commissioned by the International Institute for Educational Planning in Paris, which has attracted media attention.

The nature of FAPE requires it to invest in media and press relations; this, as well as its solid information base, is a factor in the success of its lobbying efforts. Its recognition of the importance of data sharing and the establishment of a network for the dissemination of education information may also be favourable factors.

In this latter context FAPE has begun a two-year pilot project (ARALIN) designed to: establish a union catalogue of the Filipiniana holdings of private tertiary education institutions in the Manila area; provide fast bibliographic information retrieval services; train selected staff from participating schools in how to use the system; and promote effective techniques for processing and disseminating the collections. Participating schools have been equipped with CDS/ISIS, but provide their own computers and data entry staff. The collection of the FAPE library is also computerized and feeds into the central database of the network. The collection focuses on the management, administration and planning of higher education, testing and guidance and counselling. It is open to the public and is used by research assistants working for government officials and by DECS staff as well as by graduate students and researchers.

As with the College of Education, FAPE relies essentially on the INNOTECH Resource Centre for comparative information from the South-East Asia region and would like to develop a joint acquisitions programme for expensive materials; but it does not appear to have used the resources of REIN.

FACTORS WHICH MIGHT IMPACT THE SUCCESS OF REIN AS A REGIONAL SERVICE

DECS and NMYC were the only two of four potential user organizations interviewed that had sought specific information from REIN and each could cite only one example to-date. For the other organizations, contacts were more with the INNOTECH Resource Centre which clearly is perceived to fill a useful role in providing coverage of educational developments in other countries of the region within the network of Philippine libraries; that particular function, however, is dependent on its physical presence in Manila and does not benefit REIN members elsewhere.

Integration of INNOTECH's Resources Centre with REIN

When new information centres, systems or networks are established they are often created independently from existing libraries and documentation centres. The reasons vary but probably include the need to provide the new system with a separate identity and image that is not limited by the traditional image of the library. But separate development presents a number of problems. It requires duplication of skills in the areas of processing information and identifying and responding to user needs. It limits the information resource base available for the provision of services. And it may lead to an emphasis on presentation rather than content. As indicated earlier there are signs that the operations of REIN and the INNOTECH Resource Centre will be more closely aligned. If properly thought through this could lead to a revitalization of REIN by adding qualitative and evaluative information to the factual databases now being defined and by broadening the range of skills available to the REIN Co-ordinating Centre. However, a number of technical issues will need to be addressed at the same time, notably the scope of REIN services, the problem of language and the costs and benefits of the provision of informative abstracts.

REIN as an integral part of INNOTECH operations

REIN is a special project of INNOTECH's Information Section which has received the approval and support of SEAMEO members. It is a regional initiative designed to put in place a range of databases on education which would be accessible throughout the region. The result of INNOTECH's strategic planning exercise, however, in its identification of relevant directions for the future, refers to information only in the following terms: 'to broaden the dissemination of information concerning its

research projects and training programmes'. The question can be raised therefore as to whether INNOTECH is strongly committed to a regional role with respect to information or whether it sees REIN mainly as a means for disseminating its own research and training products.

Investment in media and press relations

Influencing policy is clearly linked to influencing public opinion. Research and information organizations invest less in this area than organizations that are established with the goal of influencing policy and design their information, research and media operations in function of that. Research does not give guaranteed results; similarly, making information available is designed to increase choices for policy formulation rather than to mitigate in favour of a particular policy choice. Research and information organizations do not normally advocate in favour of a particular policy outcome unless research results or the body of accumulated knowledge point clearly in that direction. But more investment in media relations and outreach would seem to be a prerequisite for involving the public in education issues and more policy impact.

The relative priority of national versus internationally or regionally-based information sources

National policy in any area must be based on knowledge of the factual situation within the country. International and regional systems have recognized this but have tended to encourage the creation of national information systems through international or regional networking which inevitably imposes extra burdens on often weak national structures. Funding has been more readily available for broader initiatives rather than for national ones but benefits have not always exceeded burdens. The REIN experience would seem to confirm that there is a prior interest in national databases and that broader systems must provide clear benefits if they are to receive the support of their national members and thus succeed.

Factual information versus research

DECS, which is representative of the users of REIN, expressed a clear preference for factual information which identifies existing situations in other countries over information describing research results. The corollary of this may be that planners who want research will commission research rather than examine what results are already known. This may

lead to unnecessary expense and duplication. The challenge to information services is to design products that attract the policy-making community at an early stage of its consideration of problems. Clarity of presentation, clear summaries, focus on recommendations and assessment of results are factors that come into play.

SWITZERLAND

The approach of the Conférence suisse des directeurs cantonaux de l'instruction publique (CDIP)

A brief history of educational documentation and information at the federal level in Switzerland

Switzerland was chosen for this study because approaches to the provision of educational information at the inter-cantonal level are in a process of transition. CESDOC (Centre suisse de documentation en matière d'enseignement et d'éducation, the Swiss Documentation Centre on Teaching and Education) was created in the early 1960s as a joint centre of the Confederation and the cantons to be managed, within the Ministry of the Interior, by CDIP—the Conference of Cantonal Directors of Public Education. Its purpose was to assemble, analyze and disseminate all documents and information dealing with teaching and education in Switzerland, to inform national and foreign organizations about educational developments in Switzerland, to co-ordinate responses to information requests assembled from different sources and to establish forecasts of educational needs. It was to carry out its tasks in close co-operation with the regional and cantonal education documentation services. It was funded jointly by the Ministry and CDIP.

CESDOC combined an information and documentation section and a section dealing with statistics and forecasting. It was housed in the same premises as the International Bureau for Education in Geneva where the secretariat of CDIP was also originally located.

On the documentation side, it was recognized from the beginning that while traditional bibliographic functions would represent a significant part of its work, CESDOC should also provide more analytic and comparative information. Thus, as well as a regular list of acquisitions and the production of the Swiss National Bibliography on Education, it also programmed comparative studies and developed computerized services.

Key among the latter were RESEDOC and EDUC. RESEDOC, the Reseau suisse de documentation éducationnelle, was created in 1990 by

CESDOC and other main educational research and information centres to facilitate the identification and exchange of educational information scattered among different institutions. Although information obtained through RESEDOC would be mainly bibliographic, it was foreseen from the inception of the network to implement an electronic-messaging service which would enable users to request, and hopefully obtain, factual information. EDUC was the Swiss education information database created jointly by the members of the network. EDUC was made available through the Swiss telecommunications network and database host, DATASTAR, from 1992.

Switzerland thus followed the pattern of many countries in the 1980s which tried to solve their information problems by creating databases and linking them within networks.

Reasons for demise of CESDOC

The CDIP, to which CESDOC belonged, was moved to Bern in 1984. CESDOC remained in Geneva. The lack of proximity to the technical staff of CDIP working daily on education issues meant that CESDOC risked losing its roots within the real world of educational issues. This was the stated reason for closing CESDOC in Geneva, moving its information holdings to Bern and creating a new unit—IDES (Information et documentation de l'éducation en Suisse). The statistical unit of CESDOC was transferred to the National Statistical Office.

It was also clear that, while CESDOC was created to take advantage of innovative thinking in information and documentation in the 1960s, a certain disillusionment had set in. Networks and computerized databases were expensive to operate and did not always lead to significant increases in the application of information to educational planning and policy-making and the management of resources in the education sector. The availability of bibliographic information, no matter how comprehensive, did not appear to motivate users sufficiently to seek and use the information contained in the documents described. CDIP thus began searching for more dynamic, 'information oriented' approaches to educational documentation.

At the time that the interviews with CDIP took place, the process of planning the new IDES was still underway but certain principles had been articulated:

- the focus of IDES collections and services would be limited more strictly to match the concerns of CDIP for education policy; certain materials, for example teaching materials, which corresponded more to the responsibilities of the cantons, would be excluded;

- IDES would not have an archival function but would focus exclusively on current materials which could provide users with insights into the problems of the day;
- processing methods would be simplified while remaining within accepted standards.
- bibliographic information would be supplemented not only by abstracts but also by short articles synthesizing information taken from a number of sources;
- the target audience would be limited to educational planners, policy-makers and managers, and graduate students in these fields.

In planning for IDES, a calculated decision was taken to rely on the experience of its new staff and its management within CDIP, rather than on any systematic user study. The rationale for this approach was that more can be learned from user reactions to services once they have been established than from surveys undertaken in the abstract.

IDES: INFORMATION ET DOCUMENTATION DE L'ÉDUCATION EN SUISSE

This case study reflects the situation of a national education service in transition as it attempts to define its programmes and establish its relevance to users of education information with day-to-day planning and management responsibilities in the cantonal education services. Beyond its impact on planning, a more effective educational information service with a strong dissemination programme could help to address the problem. This is particularly relevant in Switzerland because of its participatory political processes, but it is perhaps gaining importance in other countries as well. How to interest the public, through the media, in education issues which in one way or another affect almost the entire population?

This case study will attempt to pinpoint new ideas incorporated in IDES plans, and indicate areas where more thought might be useful if IDES is to break out of the traditional documentation mould. It will also try to assess the chances for the new approaches proposed to attract and hold new users.

The IDES unit

IDES is a small department of four full-time and one part-time staff located within CDIP. Other departments deal with teaching, planning, inter-

national relations and administration and cultural affairs. CDIP is a governmental organization at the national level. It has been in existence for ninety-five years, but IDES is only coming into existence in 1994 and 1995.

IDES staff is made up of a manager who is a trained documentalist/librarian, two specialists (one in education, one in documentation), an assistant who handles publications and secretarial functions, and a database assistant who is responsible for management and data entry for the EDUC database. The inclusion of expertise in education in the information team was considered important for the development of informative—as distinct from bibliographic—services.

The IDES manager reports to the secretary-general of CDIP, although the head of the International Relations Unit takes an interest in the development of IDES and his ideas clearly have an impact on the new design of the service. The commitment of a senior staff member outside the direct reporting line of IDES might be important in securing organizational support for the information function and in reinforcing links between it and the realities of the planning environment.

Funding

IDES is funded entirely by CDIP, which is in turn funded by the cantons. The level of funding has not yet been established, but once it is, financial management within the budget will be the responsibility of the IDES manager. Consideration is being given to the introduction of some fees for services.

Management tools

A statement of objectives is being drafted and will be approved by the secretary-general. It should be accompanied by measurement tools designed both to monitor progress towards achievement of objectives and the activities carried out in the centre. Once IDES is operational an early evaluation is expected which will determine the continued existence of the new service. Continuous evaluation is considered to be the life-blood of the information service.

Management structures

All IDES staff report to the manager who in turn reports to the secretary-general. There is no requirement for CDIP to report separately on information activities. The latter takes note of work on the information front

but is not expected to play a determining role in shaping the service. The secretary-general is said to recognize the value of information and be generally supportive of the new initiative.

Networking structures

IDES is not contemplating the development of a formal network at this time. It believes that networking should follow from services that prove credible with cantonal constituents. It is developing close co-operation with other organizations that are funded by CDIP: the Swiss Co-ordination Centre for Research in Education and the Swiss Centre for Rehabilitative and Special Education. As a 'pre-network form of co-operation', IDES is encouraging these centres to provide bibliographic information on diskette to contribute to a joint database intended to replace EDUC.

The potential for networking among the twenty-six cantons exists, but would require the identification of documentation or information officers at the cantonal level and of joint activities of mutual benefit.

Network support tools

IDES uses the thesauri developed by EUDISED (the European Documentation and Information System for Education) and CEDEFOP (the European Centre for the Development of Vocational Training), supplemented by its own list of descriptors. It is in the process of proposing a project for training documentalists in cataloguing, according to a simplified form of ISBD. While it is not yet engaged in formal networking activities, basic processing methods are sufficiently standardized to support future networking ventures.

Users

The main users will be those responsible for educational policy in the cantonal governments and the many conferences that bring together officials from all levels of the cantonal education establishments in the context of inter-cantonal agreements. The staff of CDIP itself are not the priority group of users, but they will need to be served as well, for practical reasons, but also because their support will be necessary to ensure a long-term resource base for IDES. Efforts are being made to involve staff in the production of information services by helping to identify or abstract materials; they are not enthusiastic because it would be difficult to accommodate additional work. 'Information is always last.'. The head of

international relations does, however, help with the selection of materials and the determination of retention policies.

A more precise definition of target user groups will be developed in conjunction with the statement of objectives mentioned in section 1.

User needs

As stated earlier, no systematic study of user needs has been undertaken; management has chosen rather to rely on experience to guide identification of the types of information to be provided and the selection of services. Information is not available about the work habits or preferred information channels of the intended users.

Types and subjects of information collected

Since IDES is in the process of sifting the CESDOC collection to decide what should be kept, it is difficult to estimate the size of different elements other than specialized periodicals of which there are 300 titles. No decision has yet been taken on whether to purchase newspapers. Official and statistical bulletins will be collected from the cantons and the Confederation when they are relevant to educational policy. This will also be the case for the publications of inter- and non-governmental organizations and commercial publishers. There is not likely to be a need for non-print or audio-visual materials and relevant CD/ROMS have not yet been evaluated. Access to external databases is provided through DATASTAR and through the Swiss Centre for the Co-ordination of Research in Education. But public access will be provided only for internally-produced databases.

The main subjects of the collections are:

- educational policy;
- administration of the school system;
- university, secondary, primary and pre-school education;
- teaching methods and materials for eight representative cantons;
- teacher education;
- fellowships available in Switzerland.

The main languages of the collection are French and German. The geographic focus is Switzerland, with international material included when it is relevant.

Services and products

Services will concentrate on:

- loans to libraries through inter-library loan mechanisms and to individual users of EDUC;
- reference and referral;
- preparation of bibliographies; and
- searches of the EDUC database.

Selective dissemination of information (SDI) is under consideration. A quarterly bulletin is planned that will include a list of new acquisitions as well as synthetic reports on current issues. It is this latter service which is intended to provide factual information—and not simply reference to other sources of information—that is considered to be the main innovation of IDES.

Training is provided two or three times a year in the use of EDUC. It is open to all for a small charge. Training is considered to be one of the key means of action of an effective information service.

As stated earlier, no decisions have yet been taken on charging for services.

Sources of information

The main sources of information should be the education offices in the cantons, each of which publishes regular reports on the situation within the cantons, and the inter-cantonal conferences, the reports and proceedings of which reflect current thinking and concerns of the educational authorities. The Swiss Confederation of Universities is also considered to be an important source. Regular channels for the supply of information have not yet been established.

Application of technologies

IDES uses Macintosh hardware with the software package Bibliomac. This system provides facilities for loans control and periodicals management, as well as production of bibliographies. It accommodates the simplified cataloguing rules established by IDES. A Mac network will be installed using 4DServer. This is a relatively small system but, since it incorporates a gateway to other networks, it provides the possibility for broad information access. An Internet connection is available through DATASTAR. Computer support is provided by CDIP.

Marketing and promotion

Real marketing efforts will only be possible when services have been developed. A prospectus will be addressed to the cantonal education

departments and to individuals. Presentations are planned at CDIP. A main target for marketing will be the education commissions and working groups established by federal and cantonal authorities which will be the main sources of information and the main users of the services.

OPPORTUNITIES

IDES is intended to be a *'plaque-tournante'* or network hub which supplements the frequent face-to-face contacts among education officials with systematic and focused information support. If the situation in Geneva is the norm, the documents produced by the cantons and the inter-cantonal conferences will be available in the cantonal education offices. What is not available is access to this material by theme and subject. CDIP can fill this gap, and at relatively low cost, for all the twenty-six cantons and at the same time develop a capacity to identify issues of wide relevance within the country as they emerge.

ISSUES RELATED TO THE SUCCESS OF IDES

EDUC, RESEDOC and CESDOC: evaluation report

These three services were announced with considerable enthusiasm to fill existing gaps in the educational information scene in Switzerland. They represent approaches that were fairly common at the time they were developed. An analysis of why they failed to meet expectations would be useful for other countries but circulation of the evaluation report which set the new directions for IDES could also increase the understanding between CDIP and its users of what can now feasibly be provided in the way of educational information service within the existing resource envelope. Mismatched expectations are often the source of disappointment with the results of investments in information.

The balance between information processing and information service

IDES has a small staff and, in spite of efforts to focus its mandate in terms of subjects to be covered, will still need to review a considerable body of information. A major question concerns its ability to combine the identification and processing of relevant materials with the synthesis of key materials into useful information products that cannot be easily obtained elsewhere. This is the basic dilemma of information units: how to carry out the bread-and-butter tasks needed to provide reliable coverage for information users and at the same time conserve sufficient resources to develop more substantive information services. Users need

to know with a high degree of certainty what kind of information they can obtain from a given information centre. The amount of work required to carry out the routine production tasks needed to keep even a limited set of information up-to-date and accessible, and to create the critical mass of basic information from which more substantive services can be developed, is often underestimated.

In order to meet its objectives, IDES might consider cutting down further the material it intends to collect to only cantonal and inter-cantonal documents, thus excluding professional journals and international materials which are probably available elsewhere. This, however, would reduce the value of IDES to CDIP staff and here too a balance needs to be maintained between meeting the needs of internal and external users if the information service is to maintain credibility and status within its host organization.

The balance between inputs from users and inputs from technicians in designing services

Too much emphasis on production tasks and not enough on information services was probably an important factor leading to the replacement of CESDOC by IDES. But it is not clear from the information available whether enough is known about user reactions to justify the planning of IDES centrally, without the benefit of input from users and suppliers of information. There are advantages and disadvantages to involving users at an early stage of planning. The disadvantage is that it can generate unrealistic expectations of what services can be provided with the resources that are available, because information professionals may tend to 'oversell' their services in order to secure resources. The advantage is that it can generate a constituency of support made up of the main suppliers and the main users of information, which are often institutionally the same and whose active co-operation will be required to maintain a dynamic service.

If users are not involved at an early stage, the danger exists that the link will not be made between the universe of discourse of the information team and that of the educational specialists, and that information operations will be defined entirely in terms of the former.

The principles enunciated for IDES (a focused collection for targeted users, currency of information, simplified processing and the provision of abstracts and synthetic information) should be shared with users as soon as possible in order to create a mutual understanding of what services are expected, and what can be provided.

CONCLUSIONS

Since the interviews for this study were completed, IDES has withdrawn the EDUC database from DATASTAR and is replacing it with a new database that will be searchable from its own premises. The adjustments that are being made to the service are clear in technical terms: tighter focus, simpler processing methods, more emphasis on informative products. They are adjustments and not radical new departures and it will take time to see whether the changes are sufficient to meet the concerns that led to the closure of CESDOC.

NOTES

1. BRIDGES: Basic Research and Implementation in Developing Education Services. *Annual summary, fiscal year 1988*, p. 4. Cambridge, MA, Harvard University.
2. *Information for decision-making in education: report on new forms of cooperation based on the conference held in Extramadura, Spain in October 1989*. The Hague, Centre for the Study of Education in Developing Countries, 1991. (CESO Report no. 6.)
3. Present situation of UNESCO resources in educational documentation and information. Geneva, International Bureau of Education, 1985. (IBE Documentation Centre, internal document UNESCO/BIE/DOCINF/2, April 1985.)
4. An information system in the specialized area of adult education. Geneva, International Bureau of Education, 1973. (Working paper for the UNESCO:IBE meeting on Documentation and Information Services for Adult Education, Geneva, 29 May – 1 June 1973, ED/BIE/AE/WS/2.)

Supporting educational decision-making with research and information is neither simple nor straightforward. There have been cases where researchers and administrators have found themselves in opposition and even in open conflict, while educational information, however plentiful, did not provide the right information to the right people. In a number of developing countries, both educational research institutions and educational libraries are fragile, while the information technology revolution has now transformed the roles of the different partners.

How can information centres serve the educational community and how can researchers provide policy-makers with 'usable' products? In the context of democratic systems becoming more widespread with a broader political base, this book examines the services and procedures required to carry out the fundamental changes called for by education systems confronting the future.